University of Wisconsin- Whitewater
Whitewater, Wisconsin
Graduate School

iPad Implementation in Schools: A Handbook

A Project Submitted in Partial Fulfillment
Of the Requirements of the
Master of Science in Education – Professional Development

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July 25, 2012

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Acknowledgements

I would first like to thank my family, for supporting me in my continued research, and the many hours spent completing my project. I appreciate the time you've spent encouraging me and helping me along the way in any way you could.

Thank you to my advisor, Eileen Schroeder, for your dedicated support in helping me craft my ideas into an appropriate structure over the past two years, and challenging me to go beyond my comfort zone to find and analyze information in new ways.

Thank you to Liesl Hohenshell, my capstone professor, for your time and attention in helping me finalize my thoughts and ideas into a professional document. I appreciate your time spent answering my questions and giving me suggestions to challenge my thinking.

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Abstract

As technology changes at an ever-increasing rate in today's world, it is vital that schools are adopting these new advancements as quickly as possible. One example of this is Apple's iPad. This tablet device has gained in popularity in the consumer world quickly, as a tool for both business and pleasure. Beyond the entertainment value, iPads hold high potential to add tremendously to educational success. However, the newness and excitement of the device has driven some school districts to blindly purchase the iPads as soon as possible, without a formal plan in place. In this manner, it is likely that these schools are not realizing the full value of their investment. To best prepare a school for the purchase of a set of iPads, it is important for the school to have an implementation plan and a set of policies to govern the use of the tools. More importantly, it is imperative that schools translate these plans, policies, and procedures into structured professional development (PD) sessions for the teachers. These sessions should follow the logical steps leading up to implementation, and continue through the early and later phases of use in the schools. The PD plans should include introductions to the iPads, initial training on policies procedures, on-going training on operating the devices, and continued support and assessment, both formal and informal. With a solid implementation plan, including PD, incorporating iPads into a school's curriculum will add tremendous value to the learning experience.

Chapter One: Introduction

Touch screen technology, specifically the iPad, is a hot topic in the world of education. This technology provides a different format for users, as touch screen devices are navigated using a finger or stylus rather than keyboard or mouse. There are many benefits of desktops and laptops, but touch screen technology is exploding in the education scene. Many districts and schools are providing iPads for students to use in a variety of ways. However, as trends change so quickly, many teachers and students find it difficult to keep up with not only attaining the new technology, but also quickly learning how to operate and utilize the tools in the classroom. Many iPads are being purchased for use in schools, even though there is not a great deal of research on the actual educational impact on student achievement. Educators readily realize the likely future impact new technology, such as iPads, will have on the curriculum and student learning, but may not have exact usage strategies in place. There is an array of educational uses that come with the iPad. Many educators have just been delving into the very tip of possibilities, with new uses discovered through trial and error and curriculum sharing. Because technology changes so quickly, school administrators often need to make these purchasing decisions before formal research has been published, and reactively develop strategies and policies to utilize this new type of learning tool. This learning curve affects many types of schools, albeit in different ways.

As the library media specialist for a large high school in an urban area, I developed a professional development opportunity for teachers to try and get the most benefit from the use of the iPad. It is important for teachers to be prepared to use the iPad as a tool, not just a cool "toy". This educational trend needs to have a vision and driving force behind it, to ensure the investment pays off, for my high school.

To structure the professional development opportunity at my school, I first utilized research on successful iPad programs to determine the appropriate apps to load. From there, the teachers and students can discover new applications. As new apps are discovered, I will act as the gatekeeper to review the suggested apps, and determine appropriateness.

The first, and most obvious, use of the iPad stems from the variety of applications that are educational. Most teachers and students are aware of at least some of the applications and how to use these in the classroom. For those that are not, brief introduction courses are available both on the Internet and through in-school demonstrations. Once teachers become familiar with some of these apps, they can begin to utilize the strategies in their lesson planning. In my experience, as students are introduced to the educational iPad uses, students are able to work independently on iPads or in small groups. Users can create picture collages, videos and music. However, as with any technology, there will be problems.

The biggest problem that has come to the forefront in implementations in schools has been the distraction that iPads can cause for students. Students can spend infinite amounts of time just searching and playing with the applications and games that the iPad has to offer. The use of the iPad in classrooms has to follow a specific rollout or classroom uses plan. I conducted research and created a roll-out and associated policies handbook. Students will work with the iPads in supervised conditions, and the iPads will not leave the specified classroom. This plan needs to be meticulously observed or the use of the iPads may prove to be a distraction rather than a supportive tool.

Chapter Two: Review of Literature

Technology is influencing every aspect of our lives. Students use technologies at younger and younger ages. Teachers need to expand and adapt their lesson plans to account for this transformation. Educators are being forced to change their instruction in order to keep up with the changing dynamics. Technology has been a subject of educational research for the past thirty years. The research has focused on several aspects of integrating technology into curriculum. The main themes of the literature in this review are development of touch screen technology, pilot studies of schools with iPads, applications, and professional development.

Touch Screen Technology

Touch screen technology (TST) is not brand new. The first application of TST was actually developed in 1967 by E.A. Johnson (Deal, 2008). Touch technology has come a long way since then. Bill Gates and Microsoft developed the first tablet computer device. The release of Microsoft's first tablet computer was in 2001. Gates predicted that within five years of the release, touchscreen computing would be the most popular type. This prediction has come close to coming true in the last few years.

No device has sparked as much interest as Apple's iPad. The first iPad was released on April 3, 2010. Not even a year later the iPad 2 was released. Apple has developed a stronghold on the tablet market. Apple's take on the tablet computer has been far more successful in terms of sales. The iPad does not cost as much as previous tablet computers, which may be a driving force in the sudden, extreme popularity of the iPad. There are a variety of touch screen devices, but the iPad continues to be the top seller (Furfie, 2010).

Models. Currently there are two different models that are available for purchase. The iPad and the iPad 2. Both of these models are available with 16, 32, or 64 GB of memory. The two models are very similar; however, the iPad 2 has a few features that separate it from the first model. Both the iPad and iPad 2 can connect to either a wireless network or through a 3G cellular network, depending on the model. The iPad 2 also has a built in camera that can face both ways. This camera can be used for shooting video or chatting, among other typical uses (McCombs, 2011). The iPad 2 is 33% thinner than the original and runs on a faster processor. Both of the iPads have a keyboard that can be connected, though you do not need it because of the touch sensitive screen. The battery life on the iPad really separates it from other touch screens available. The typical battery life is about 10 hours. One downfall of the battery is that it cannot be replaced. Once the battery dies the device is pretty useless (Palser, 2011). This differs from the way most consumers of handheld devices, such as cell phones and laptops, are used to having the device operate.

According to Waters (2010), Apple sells a few different pieces of hardware that can be used with the devices. A bluetooth keyboard can be used with the iPad. The keyboard is not needed because of the built in touch keyboard, but is available for users who are more comfortable with this traditional piece of hardware. Apple also sells protective cases for both models. These cases can function as both a viewing stand and protection from damage for the iPad. Both models also have a docking station that can be purchased with the device. The docking station has a speaker system built into it. There are only two ports to connect devices to your iPad. There is the typical 30 pin dock connector that is custom to all Apple devices. The other port is a headphone jack. A cable is provided to connect an iPad to a computer through a

USB port to charge the iPad. However, the iPad does not have a USB port, so you cannot connect it to other devices (Waters, 2010).

Operating system. Barrie McCombs believes that one of the reasons the iPad has been successful is due to the thriving operating system. The operating system was established by the predecessors to the iPad, the iTouch and the iPhone. The operating system is the most important part of any device. The operating system runs all the applications and provides the most common services needed. All of Apple's devices use the iPhone operating system (iOS). Both models of the iPad run the iOS 5.0 operating system. Apple uses iTunes, a free program, to synchronize and set up all of their devices. The online store allows the consumer to purchase the applications, music and videos that they desire, directly from Apple. McCombs also states that there were over 1,000 applications available for purchase on the day of the iPad's launch. New applications are being created everyday. The new ideas that are coming out for the iPad are some of the most innovative and creative applications consumers have seen (McCombs, 2011).

Programs. Another reason the iPad is so popular is because of the software applications. There are an array of programs available such as Apple's Pages, Numbers, and Keynote. These programs are very similar to Word, Excel, and PowerPoint. This software is not perfect for the iPad but it allows it to function as a computer would. This set of programs allows Windows users to transition to Apple's products without having to completely learn brand new software, as the similarities are many in these basic programs. The functionality, portability and flexibility of the iPad have contributed to the popularity of the device (Furfie, 2010).

Pitfalls. Like any technology, there are some downfalls of the iPad. According to Deal's research, the biggest scrutiny of the iPad is the inability to run Flash video. Flash supports a great

deal of websites, and must be run on a device to allow a user to actually use these websites. The iPad's internet browsers are not compatible with Flash right now, but there is current discussion regarding how HTML5 may replace Flash in the future. The most common browser used on the iPad is Safari. Much of the competition for the iPad is compatible with Flash. Even though other tablets allow consumers to use Flash video, the iPad continues to outsell the competition (Deal, 2008).

Palser also acknowledges the negatives and disadvantages of the iPad. The iPad does not come equipped with a USB port. The USB port is the most common port used to connect a wide variety of devices, such as digital cameras and music devices. The only way to synchronize your Apple devices is through cloud computing. There is no way to do this without a PC or Mac. One computer can sync numerous iPads. To use iCloud you must use Apple's website and it can only be set up using a laptop or desktop. Once it is set up it can be run through any Apple device. Consumers also would like a better mode of multitasking available on the iPad. There is a form of multitasking, but you cannot see the applications at the same time. Right now you can only see one application at a time (Palser, 2011).

Schools and iPad technology. With all the information and research available on touch screen and tablet computing, school personnel are forced to make the tough decision on the best use of their funds. The wide variety of technology available makes these decisions even more difficult. Is the iPad a tool or is it a toy? Tremendous amounts of resources are being dedicated to digital technologies. Many of these technologies have not proven their educational value, mostly because they are too new to have accurate research to support the expected impact. There are a variety of other factors surrounding the educational impact of the iPad. One reason may be that

educators are replicating current practice instead of changing their teaching strategy (Murray &

Olcese, 2011). Many administrators are not giving their staff the proper professional

development on practical uses of the iPad. Educators are making expensive decisions on new

technologies that they believe will impact their students' academic achievement. The lack of

professional development and the quick decisions being made leaves schools with only one

option to use in guiding their decision-making processes. This option involves trial and error.

This method leaves many professionals wondering if these investments are wise, and exposes

school administrators to a high level of risk (McCollum, 2011). McCollum argues that

administrative teams are making their decisions based on the research that highlights the benefits

of one-to-one computing, and may not be basing decisions off well-rounded research.

      iPad vs. computers. The iPad has taken the world of education by storm. Many

educators are opting to purchase the iPad over other devices, such as the netbook or

Chromebooks, desktops or laptops. Desktops are not really in the equation for devices in schools.

Schools already have computer labs and are trying to create mobile labs or move towards 1:1

computing. The laptop is expensive, sometimes as much as twice the cost of the iPad, and does

not have the same touch screen ability or guaranteed a built in camera. However, in most aspects,

the underlying functionality may be similar between computers and the iPad. However, there are

tradeoffs as with any decision. Namely, laptops may provide better word processing capabilities,

but the iPad provides more interactive activities. The laptop is also slightly larger than the other

mobile devices. The discussion comes down to the mobile devices that can be easily transported

back and forth to school (Furfie, 2010).

iPad vs. Chromebooks. Chromebooks are extremely fast. The Chromebooks are really only designed to be used to surf the Internet and use Google applications. The device is built for users who do not need all the bells and whistles. Users also can use other cloud-based applications such as Animoto. If a school was looking for the cheapest way purchase a small laptop that connects to the Internet, the Chromebook is ideal. The main difference and the main reason the iPad is separating itself is the interactivity that comes with the iPad. The iPad can be used as a freestanding device for many of the applications. The Chromebook needs to have Wifi to use many of the applications. The iPad comes with all the bells and whistles. These extras are the reason administrators are so interested in the iPad (Furfie, 2010).

iPad Applications and Pilot Studies

Most of the research on iPads and their educational uses suggest that the iPad is used mostly for the applications. There are thousands of educational applications available. The trick for schools and teachers is finding the applications that are right for their curriculum. There are applications available in almost all content areas. One downfall of these educational applications is the fact that teachers and students are finding advertising on a great deal of them. Advertising can definitely take away from the educational value, as these ads cannot be censored or deleted. Typically these advertisements only occur with the free applications. Another major downfall argued by Murray and Olcese (2011) is that many of the applications that are developed for education are just an extension of the systems already in place on desktops. Numerous applications do not take advantage of the features of the iPad that make it special, such as collaboration.

Many schools have participated in pilot studies to help determine the actual impact of the iPad. The pilot studies were developed and conducted by administrative and technology teams at the specific schools. Through these pilot studies, educators have highlighted numerous applications that have worked for them. Each school is different and has discovered what seems to work through trial and error. The specific schools involved in these pilot programs have given other schools a framework for their own studies. The applications covered in these pilot programs varied from school to school and covered most content areas. Most schools cited that the key to success was finding a great balance of functionality and convenience (Murphy, 2011).

English applications. In the content area of English, there are many useful applications. Some applications that have been highlighted are geared toward media production, while others concentrate on specific skills. Students were able to use Evernote to share their files and research across multiple devices. According to the article, "The Teardown: Apple iPad 2," the iPad can be used as an e-reader across all grades levels. Specific applications, such as Shakespeare in Bits: Romeo and Juliet, have been used at the secondary level. At the primary level, there is a great deal of applications that can help students learn to read. Using the application Teach Rocket to Read, students help a dog learn how to read. There are a great deal of storytelling applications that educators are very excited about. These applications as well as numerous others have been used in schools across the nation. Teachers can find all types of applications that can be used in the area of English and Language Arts (Teardown, 2011).

Math applications. There are also many popular applications in the area of Mathematics. Once again teachers can find something for any grade level. Master the Math is an application that reinforces the importance of math facts, and gives a forum for students to practice

memorization. There are a variety of drills used to teach and enrich these skills. The iPad also acts as a calculator or can act as the actual whiteboard. There also are numerous educational games that can be downloaded to strengthen math skills, similar to the online math games many elementary schools use today on PCs (Teardown, 2011). Most of the applications are very customizable. This is a must for most teachers. Teachers are using the iPad to support differentiation in their classroom. Each student, or group of students, can customize the applications to their specific skill level. The applications also seem to provide endless amounts of math problems. This could be seen as either a positive or negative by students and teachers. At the high school level there are many applications that revolve around more complex topics such as graphing or basic geometric calculations. The iPad has applications that are great for data visualization as well (Murphy, 2011).

Social studies applications. Social studies departments also are finding many applications that appear to be useful in their content area. Most of the applications revolve around geography and history, and include content at many different levels of understanding. There are applications that can be used from kindergarten up to high school. The iPad offers a great deal of interactive maps for student use. These maps can be used in a variety of ways, and can easily be incorporated into many different curricula. There also are applications that allow students to take virtual tours of ancient places and cultures. The virtual tour applications have been well received in the educational world. The iPad also has virtual tours of museums. The students will be able to take virtual field trips in a classroom, rather than out of school. The idea of virtual field trips can be very appealing considering all the options that students and teachers

would have to choose from (Teardown, 2011). The virtual fieldtrips can also be used as a cost-saving measure when evaluating the costs and benefits of purchasing iPads for a school.

Science applications. In the core area of Science, iPads are finding an educational niche. According to the research conducted by Astall (2011), teachers are finding great simulations in regards to the moon, sun and the planets. Students are able to stop, pause, and rewind these simulations with just a touch of their fingers. This type of simulation would allow teachers to do things that they were not able to do with typical photos. The students are also able to move at their own pace through the simulations. Biology teachers are also pleased with the applications that are being designed on molecules. Students are able to search and analyze the molecules from a variety of angles. These visual aspects of the iPad allow students to analyze things at the molecular level like never before.

Miscellaneous applications. While there are many content specific applications, there are also several applications that can be used in all content areas. Art, special education, world languages, and physical education are all finding the iPad useful as well. There are many applications that can be used across all disciplines. According to Angel (2011), students are able to use the iPad to create digital art. The students can also create a virtual museum with their created digital art. It is difficult to put a value on these types of uses in schools. Many Special Education and English Language Learner (ELL) teachers find that the iPad can break down many barriers for their students. These students are able to take advantage of the visual aspect of the iPad (Teardown, 2011). Many of the applications and uses of the iPad are untested possibilities. All of the applications that are available for educational use will need time and energy from teachers to find the ones that work the best. The obligation also is placed on the

teacher to integrate the iPad into their curriculum. The perception is that the iPad is a powerful tool that will integrate itself over time, as both students and teachers gain a level of comfort (Banister, 2010).

Multimedia applications. Educators have also taken advantage of the multimedia applications of the iPad. These applications include the video camera, still photos, audio and creation applications that are readily available with the iPad. Brooks-Young (2011) highlights these uses in the research on tablet devices. Teachers find the iPad to be a useful tool when students need to create a project. The iPad has many of the tools needed wrapped up in one device. It used to be that students needed to take the video or photos and then upload it to a computer to modify the materials. The iPad allows students to shoot, create and edit the media they want. This makes creating digital projects accessible in every classroom or anywhere. The iPad is innovation waiting to happen. Teachers and students just need to take the initiative to learn how to use it in the best way that works for them. The iPad is very unique and really forces the teachers and students to think outside of the box and enhance their learning.

This type of tool makes a great deal of information and resources available at the student's fingertips. Research can be conducted and put into the digital project. The iPad also makes sharing the digital projects easy. Many school districts are using eBackpack or Dropbox to move towards the paperless environment. These cloud-based programs allow students and teachers to share information easily and quickly. To find information, students will be able to use the school's databases and their favorite search engine to find the information needed. There also are a plethora of reference tools to cite and keep track of the information. With all the power and possibilities in one device, it is easy for students and teachers to become overwhelmed. It takes

time for the user to become skilled in the area of media production. The time and effort can lead

to thought provoking and practical projects for teachers and their students (Brooks-Young,

2011).

Pilot Studies

Educators are finding that the iPad is useful in other ways too. Results from pilot studies

are beginning to be published on the impact of iPads in the hands of students. The studies

conducted in both large and small school districts with high and low incomes, have reported both

advantages and disadvantages. Administrators are being forced to make their decisions on iPads,

no matter who their population is. The participants have shared mixed feelings towards this

technology. The early reviews are positive, but many teachers remained passive about

purchasing numerous iPads. The idea of the iPad, as the new technology can be intimidating. For

many school districts, educators seem to be discovering the potential of the iPad (Walters &

Baum, 2011). There are a lot of factors that go into a school pilot program. These factors include

grade level, the student-to-iPad ratio (if it is a 1:1 pilot study), who technically owns the iPad,

who will replace it if breaks, and many other factors. The schools have documented the impact,

or lack thereof, throughout their experiences. This impact could be on student engagement or the

effect on academic achievement. Educators seem to be interested in the idea of integrating iPads

into their curriculum because of the research that has been done on one-to-one computing, but

are unsure of how to approach the integration process. Many districts are intrigued by this idea.

The idea makes sense to them in more than one way. Not only does it seem to have an impact on

achievement, it also seems to make economical sense to them. In the long run some school

districts are finding it cheaper to invest upfront in the iPad, rather than pay each year to replace

lost or damaged textbooks. There have been a lot of discussions about digital textbooks and the role of one-to-one computing in schools. One to one computing is an extremely different model than having a cart that is circulated. If a school has a circulating cart the iPads will only be used by each student for a short period of time and it would be hard to determine the education impact of this type of set up (Li & Pow, 2011).

Virginia Experiment. The Virginia Experiment has been one such documented school pilot study. The school district used the iPads as digital textbooks and the students also used it as a tool in many other content areas. The students were each issued an iPad for use in all classes. The students took the iPad back and forth to school. It was used for projects, applications, and much more. The initiative of this experiment was to find the uses beyond textbooks. The state purchased 350 iPads for 4th, 7th, and 9th graders. These students attended school in four different counties. The main goal of this experiment was to put the notion of one-to-one computing to the test in an actual school setting. The iPad was used as a textbook in some classes, but teachers across all areas made an attempt to integrate it directly into their curriculum in other ways. The pilot was mainly based in the Social Studies classrooms. This was the only curricular area in which the iPad was used as a textbook. The students still took the iPad to all their classes to use in other ways. This forced teachers in all subject areas to adapt to the presence of the iPad and adjust their teaching style. These teachers began to realize some of the potential of the iPad (Quillen, 2011).

Quillen conducted interviews of students and teachers to determine the positives and negatives of the pilot program. These interviews reported mixed results. The majority of students and teachers believed that the iPad was helping students in their educational experience. Quillen

did not interview all participants, but the interviews did give him a sense of the pilot study. The driving question behind the pilot study was, "Is the iPad the best use of funds or is it simply a tool to engage and motivate our students?" The study also set out to answer the question of whether or not the iPad can be used for one-to-one computing, or if it is better suited to act as a digital tool in the classroom. Initial findings have begun to address these questions. (Quillen, 2011).

The Virginia Experiment yielded a great deal of positive outcomes. One student teacher stated, "the nice thing on the iPad is you have more real estate to present content visuals, and to physically navigate". The visual aspect of learning was a huge success. All four schools reported that the students, especially English learners and Special Education students, were impacted by the visual aspect. This biggest positive impact was reported for communication skills and class assignments. The four schools also believed that students demonstrated an increase in 21st century skills. Teachers had students using the iPad to conduct research, communicate through classroom social networks, create multimedia projects, and use the applications. Sam Farsaii, a district official, reported that the schools participating in the pilot study showed improvement in their schooling. He thinks that it is hard to measure the educational impact the iPad has because of all the factors that surround one's education. He recommends school districts around the nation employ similar studies and share their findings. Quillen believes that this type of study will yield many of the same results around the nation (Quillen, 2011).

The pilot schools also reported some negatives of using the iPads. Many of the teachers commented on the tough adjustment period. The staff noticed an increase in time to create their lesson plans; however, many stated that searching for applications eventually became second

nature. The teachers needed to adapt, and many times this needed to happen on the fly in the middle of a lesson. The amount of access that is provided by the iPad was both good and bad. The students did need redirection to keep them on task. Findings from this study suggest it is important for teachers to remove distractions, monitor students, demonstrate skills, and assess progress. Administration in one district in this study also wanted a stronger plan for rollout of the iPads. Each school had general instructions, but had the chance to develop the pilot at their school. Quillen reported that all participants were impressed with the impact on learning. The biggest negative that came out of the study was that, at this point, the iPad is not ready to replace desktops or laptops completely. The potential is endless, but the iPad seems to be better suited for a tool in this school district's study, rather than a device for one-to-one computing (Quillen, 2011).

       Center Grove School District. Another iPad study was conducted in the Center Grove School District in Greenwood, Indiana. The pilot program included fifteen students during summer school. All fifteen students were English Language Learners. Julie Bohnenkamp, director of technology for Center Grove, figured that these students would be useful as a small target audience. She also felt the iPad was the perfect tool for the particular group. The district serves students at one high school, one middle school, and six elementary schools. The pilot was coordinated to determine if the district should move ahead with purchasing iPads for each school. The district decided to start small and work their way up. The goal for the fall of the following school year was to launch a larger program. The administrators used a small group of fifteen students to better analyze the effectiveness and develop best practices in a very controlled

environment. The study only used free applications during the summer. The larger pilot has plans for purchasing certain applications for the iPads (Schools, 2011).

Bohnenkamp believes that the iPad is a very cost effective tool to get digital content into the hands of students in the Center Grove School District. The pilot was believed to be a very positive experience for the students and district. Bohnenkamp and the district will move forward with the larger launch in the fall. The plans for this launch will put iPads in the hands of all students in an entire classroom. The pilot group decided to have the iPads housed in the high school, middle school, and one elementary school library. The thought behind keeping them in the library is to get as much student use out of the iPads as possible. The district believes that students in all classes will be able to tap into the possibilities presented. This will mean that the library media specialists and teachers will need to develop plans to rotate the iPads around. This will also cause problems with the applications used for each class. The iPads will need to be synched often to make sure they are ready for the next class. The hope is this pilot will give the information they need to make the informed decisions (Schools, 2011).

The Center Grove School District concluded that the iPad worked great as a tool to consume media. The iPad definitely had limitations to what it could do in the educational world. Bohnenkamp argued that the iPad is not ready to be used primarily as a one-to-one computing tool. She cited the keyboard and word processing applications as the main reasons for this. Specifically, "The touch screen keyboard is not built for extensive typing," explained Bohnenkamp. Center Grove does want to move forward with more purchases of iPads school-wide at this time. The district believed that the iPad really promoted teachers' creativity. This in

turn trickled down to the students. The students were creating amazing projects, and with time, the district believes that the use of the iPad and technology will only advance (Schools, 2011).

According to Allyn's article, Against the Whole Class Novel, one thing that all the schools conducting pilot programs agree on is that the iPad is a great tool as an e-reader and textbook. Educators are impressed with the ease of downloading books to the iPad. Textbook companies are making giant strides in this. The companies see the demand in schools for this. School administrators told Allyn that every year when they need to purchase textbooks, e-readers and iPads become more and more tempting. Districts find themselves spending large amounts of money on textbooks. Many districts are interested in developing a cost-benefit analysis on textbooks versus digital textbooks. Educators also like the possibilities that come with the iPad beyond textbooks. There is instant access to newspapers and magazines as well. The iPad and other touch screen computers are more versatile than some of the other e-readers at this point (Allyn, 2011).

Allyn also made it clear that all educators are not ready to jump into replacing their textbooks right away. There are many critics of the iPad and newer technology in general. The belief is that educators are blindly putting faith in technologies that have not produced proven long-term results. There is still a strong belief that having the paper source in front of you and learning the fundamentals will improve learning. There are some great things happening in schools with the use of technology, but many wonder if it is really promoting achievement. Allyn proposes that educators are getting to the point where they will have to "put up or shut up," meaning that the money these educators are spending on technology will need to start showing some real results (Allyn, 2011).

Professional Development Rationale

The iPad definitely has value in the world of education; however, it is up to the staff to find best practices. Education has always valued the benefits that professional development has to offer. There are a variety of ways that teachers and staff can participate in professional development. The educational impact of iPads is still relatively untested. The majority of the pilot studies point to one underlying theme. Teachers and staff need the proper training to use the iPad most effectively. Professional development has many known benefits. One of the benefits is it gives teachers the opportunity to review their work both individually, and with peers. Schools and teachers need to constantly analyze the work they are doing. Professional development allows the time for this. Another benefit is the chance for staff to work collaboratively with one another. This will allow teachers to learn best practices from one another. Professional development needs to be set up in such a way that it will best impact student learning. The ultimate goal of professional development is to improve student learning. For professional development to truly be effective, the trainings should allow time to adapt and improve the curriculum for the students. Professional development is often based on standards. Professional development should provide teachers with the resources they need to impact learning. These trainings should provide teachers with the vital knowledge and skills needed to be the highest quality teacher (McLester, 2011).

It is very apparent that many teachers are falling behind in their level of comfort with technology. In Kayla Quinney's article "Bridging the Gap: Self-Directed Staff Technology Training," the need for high quality staff training in the area of technology was highlighted. Teachers consider themselves lifelong learners. The utilization of technology is not different.

Teachers need to have the knowledge required to teach students how to properly use technology. The area of technology can cause problems in schools. Many teachers do not feel comfortable enough with technology to use it as a tool in the classroom. In order to make professional development on technology meaningful, the trainings need to be practical for classroom application and help with the understanding of the challenges that teachers face. Quinney stresses the importance of these types of trainings. Her research also suggests setting up the professional development so teachers can learn at their own rate. This type of self-directed learning is ideal for technological training. Teachers can also take this type of learning and use it in their classrooms. Students will be able to learn at their own rate on the technology in the classroom. Quinney gave a list of vital features to successful professional development. This list included qualities such as sustainable, relevant to classroom practices, research based, and accountable (Quinney, Smith, & Galbraith, 2010).

Sean McCollum in his article, "Getting Past the Digital Divide," featured sustainability as a critical factor of successful professional development. A stand-alone workshop has less than a 5% chance of actually changing teacher practice in the classroom. Sustainability will help to maximize the training sessions. Research shows that professional development has a greater impact when it is conducted over time. This allows the participants to walk away and let the information sink in. Once the decisive points have set in, the next training will build upon the previous one. Having sustainable professional development will help with the "digital divide." The digital divide often refers to the disparity of technology between schools. This divide is starting to also refer to the disparity between individual users. This digital divide exists among

students and between faculty and students. Having well supported, long term professional development will help to alleviate this divide (McCollum, 2011).

It is also important that these types of trainings teach the same skills to the participants, regardless of each individual's starting skill level. In most cases, professional development is focused typically on best practices. In order for professional development to be sustainable, the trainings need to be well staffed and have plenty of resources. The resources can be anything from research to trained professionals who come in and assist. Each school and leader of the trainings will need to decide what works for them. The goal is to strengthen teacher's knowledge of the educational impact that technology can have (Smolin, & Lawless, 2011).

Alignment to standards. In accordance with Melissa Pierson's research article, "Framing the Assessment of Educational Technology Professional Development in a Culture of Learning," another imperative aspect of professional development is the accountability. If the trainings are not aligned with a list of goals or standards, they will not be successful. A variety of characteristics help to make professional development accountable. The first characteristic is that the trainings are aligned with benchmarks and core standards. These benchmarks and standards will act as stepping-stones to get to the end result. It is important for the leader and the participants to monitor their individual progress as well as the progress of the students. The professional development should also use data to drive decisions. Data is a great tool to use during these trainings. It shows the participants that there is reasoning and research that goes with the trainings. This data often is student data. Incorporating student data ensures the trainings are relevant to the specific school. The last characteristic is having an end result or goal in place.

The participants will want to walk away with something concrete to use in their classrooms. This end result may be a change in teaching style or curriculum (Pierson & Borthwick, 2010).

      Local relevance. Iain Doherty emphasized the importance of local relevance in order to evaluate professional development as a positive experience. Training also needs to be relevant to the specific school. Doherty's article, "Evaluating the Impact of Educational Technology Professional Development upon Adoption of Web 2.0 Tools in Teaching," challenges schools to embrace technology and adapt to the uses at their school. He believes that technology is a powerful tool when used correctly. Professional development is a key component of integrating technology into curriculum. A successful training will convince teachers of the importance of the topic and give them something to walk away with that can be implemented. Educators need to develop a technology plan and implement the plan school-wide. The best way to implement the plan is to train the teachers on the plan using professional development (Doherty, 2011). Vince Ham (2010) also stressed the importance of having school-specific professional development in his research. The importance of specialization for professional development gives a clear advantage for teachers. It is vital for teachers to stay as current as possible in their training and to correctly utilize technology with their students when possible. Often, teachers will be energized by professional development trainings and get back to the classroom to find this momentum has waned as they try to apply the new material to everyday teaching. The importance of ongoing and specific trainings is demonstrated by the implementation of the learning processes from the trainings.

Technology Professional Development

Drew Polly (2010) conducted research in the area of technology and professional development. Polly noted a significant impact in creating high quality trainings. His findings highlighted that technology needs to be used as a tool to connect with other teachers and experts. These connections will go a long way in the day-to-day experiences of students and teachers. Teachers are able to find best practices and use them correctly when they are connected with the right people. The students will not be prepared for the 21st century if our teachers are not prepared. If teachers are prepared and properly trained, they will be able to tailor lessons and use technology to further student success. Professional development is a key tool that teachers must use correctly to reap the proper benefits (Polly, 2010).

Critical Friends Model

In the world of education the Criticial Friends Model of professional development is becoming very popular. This model puts teachers in peer groups to work through professional problems or examine student work. Each situation has a specific protocol that is followed during the discussion. This allows the participants to get down to the problem and work towards the best solution. This professional development forces the participants to follow the guidelines and keep each of them on task during the protocol. The type of professional development is ongoing. The participants will come back to together and follow up on similar opportunities (Baskerville & Goldblatt, 2009).

Summary

Educators are committed to further enhancing classroom practice and school-wide implementation of 21st century learning through technological innovation. The adoption of iPads

can contribute to school wide technology innovation and ingenuity, divisional knowledge sharing and comprehensive technology implementation in classrooms. The hope is to continue to promote access and equality for all students in their educational journey. Educators should be able to explore new uses for instructional technology in the classroom by using the iPad as a tool for cutting edge instruction.

While the popularity of iPads is clearly growing at an exponential rate, it is vital that more complete, accurate, and helpful research continues to provide the most precise and useful data to school districts. Innovative technology use is vital to the future of education and to society in general. Most of the existing research on iPads points to the future, in that, even if the particular researcher provides negative reactions to the use of iPads in school, most researchers agree that these negatives will likely be fixed or overshadowed in the future. This does not mean educators can ignore the critics. It is vital for educators to use all the information presented on iPads to make informed decisions on educational uses.

Professional development is a strong forum to begin the implementation of this technology. Many research articles, involving both technology training and other, standard training, clearly point to professional development as critical in creating and maintaining top educators. Utilizing this platform of professional development for training will allow the iPad pilot program to be evaluated in a more pure form, as outside variables can be controlled as much as possible.

The use of professional development in conducting an iPad pilot program, and research on the resulting use of iPads in classrooms, is different from previous research and studies on the topic. By focusing on giving teachers formal, structured, and multi-part training in a professional

setting, the pilot program will have a strong foundation. The iPads will be the focus for the pilot program, but teachers' comfort and knowledge with the tool will be focused on as well. Because the use of iPads in everyday curriculum is a new concept to most teachers, the use of a familiar mode of professional development will hopefully ease anxiety and allow teachers to put full focus on learning the tool and discovering ways to improve their own teaching styles and lessons. Both coaches and critical friends will be utilized in addition to other forms of support to provide as much assistance as possible to teachers.

Technology in schools is not going anywhere; in fact, most research on the topic points to the use of technology at an ever-increasing rate. It is only a matter of time until teachers will need to be fluent in these technologies, and students will be expecting full use of all available technology. By preparing a solid implementation plan, conducting critical teaching through professional development, and continued support inside and outside the classroom by both the media specialist and other teachers, the use of iPads in schools can prove to be an easy and critically important improvement to the education system. The handbook I developed sought to support a school community in the first stage of adoption.

Chapter Three: Handbook Development

The research on implementation of technology in schools emphasizes the importance of trainings and having a clear plan for the technology. I developed a handbook to guide the initial implementation plan for iPads at my high school. I also developed a professional development plan to support teachers during the introduction of iPads in the school. The handbook focused primarily on setup of the iPads, professional development on the iPads, and management of the iPads. The handbook is a working document, and I expect to make modifications. My goal was to provide the groundwork needed to successfully integrate the iPads into classroom curriculum.

Survey

A survey was created to guide the handbook (Appendix A). The survey was sent out to six school districts. Four of the six school districts participated in the survey. The survey included nine questions, and then an open-ended question to leave any other notes. I sent the surveys by email to a group of media specialists from different size schools in different types of socio-economic areas. I surveyed library media specialists from five school districts across the state, as well as one in Illinois, to create my recommended policies and procedures for iPad implementation in schools (Appendix A). Each district currently utilizes iPads in some capacity in their schools. Most of the districts, except one, have iPads located solely in the library. The aspects of the handbook that were included as a direct result of the survey were security, management, and some form of professional development on the use of the iPad.

Handbook

The handbook is displayed in Appendix B. The purpose of this handbook was to develop clear guidelines for implementing the iPad 2. There is a great deal of research surrounding the iPad. Some research showed that the iPad has an impact on student learning (Walters & Baum, 2011). The research also shows that school districts are not giving their staff enough training on implementing and integrating iPads into the curriculum. The handbook really grew in many different ways. The first draft was based off of information gathered from the surveys and discussions. Additional changes came from evaluations of the initial draft. The setup of the handbook was changed three times. It now reads in a recommended order of implementation.

Because of this strong connection in the future to the incorporation of technology in curriculum planning, this area of education is vital, especially from the perspective of a library media specialist. In this role, library media specialists will likely be looked to as leaders of technology implementation in their school. To help prepare for these impeding priorities, it is vital to understand the full view of the use of iPads in schools; the good, the bad, and the unknown. Therefore, a handbook on implementation polices and professional development was designed to ease the implementation of iPads. This handbook was developed in the Spring of 2012. A variety of aspects of the iPad were researched to create the handbook. The majority of the research revolved around implementing the iPad with the proper professional development trainings. The handbook covers topics that range from the deployment strategy to security. Additionally a sample student contract is provided (Appendix C). This contract holds the students accountable for the care and upkeep of the iPad.

Research and Theory for Professional Development

When adding any new professional development opportunities, it is vital to understand the purpose and benefits that can be expected from the time and financial investment on behalf of the school district. There is a need for this type of training in schools. Many teachers are not ready to take the next step in using technology in their classrooms. It is important for teachers to realize that they need to be able to adapt their curriculum with the changing roles of technology. Not only does this new technology offer new ways to teach lessons, it offers a platform with which to facilitate student engagement. It is vital that the education system stays up-to-date with the latest technologies, and maintains the ability to speak to students in a language they can understand. While there are risks, the iPad can be an extremely useful tool if used correctly (Doherty, 2011).

Professional Development Models

The professional development opportunity also follows the requirements that Allen (n.d.) specifies in her model. One the most important aspects of this model is having a focus for the training. Allen also offers tips on about the length, environment, and having a predictable format. The trainings on the iPad used these tips to create a format that is the most beneficial for the volunteers. The handbook outlines the dates and topics for each session. Allen (n.d.) stressed the importance of following up between the sessions. Therefore, the handbook built in ways to provide additional resources when needed.

The handbook used the supported professional development model that has been adopted by the school district. The district has developed a Critical Friends and differentiated professional development model (National School Reform Faculty & Harmony Education

Center, 2000). The same type of model was used to develop the professional development for the iPad handbook. The development focused on a series of introductory sessions on the basic interface of the iPad. These sessions include touch skills, device management, file management, cloud computing, and using the iPad as a reference tool. The development opportunity is designed to break the teachers into small groups. These groups provide feedback on an individual's understanding of uses, and uncover ways to be more efficient and productive in the uses. In no way does this relate to teacher proficiency. These groups work together to master the different aspects that were touched upon in training. The groups coach each other on the different areas of the trainings. The peer groups are seen as trained "experts", along with the library media specialist, are the frontline for questions, and act dually as coaches. The coaches are able to give constructive feedback, as well as other input, to help further the skills of their group members.

Method of Evaluation

Once the handbook was finished it was sent to a variety of professionals in the field. There were a total of four people who received the handbook for evaluation. Three of the four returned the handbook with feedback. These professionals worked in a variety of roles in either K-12 districts or higher education. These roles included a library media specialist, technology coordinator, and associate professor. The handbook was revised three times based on the feedback that was received. A team of administrators will determine whether or not the district will use the handbook for implementing iPads. The goal of this project was to develop a handbook to support successful deployment and implementation of iPads in the curriculum.

Chapter Four: Evaluation

The handbook (Appendix B) evaluators were a library media specialist in a different district, a Technology Coordinator for the school district, and an Associate Professor of Academic Foundations at a University. The evaluation process was open. General information about the handbook was provided to give the evaluators the main themes. There were no guiding questions specified. The feedback provided information on professional development evaluation, staff development differentiation, and applications. The results in this chapter report the main themes that emerged from the feedback. Chapter five explains how the feedback was addressed.

The results from the evaluations highlighted certain components of the handbook. Three main themes surfaced through the process. The first result addressed was the lack of an evaluation tool for the handbook. It was believed that some type of tool was needed to provide feedback after the first year of implementation. Results from the evaluation tool would be used to adapt the handbook for future implementation and professional development opportunities. Appendix D was created to address this concern. Evaluation can be a problematic process. It is important to evaluate the handbook and implementation, and not the specific staff who participated in the opportunity.

The next component the evaluators focused on was staff development. The most important part of a plan like this is staff development, which creates ownership and promotes successful implementation. Evaluators believed that this part of the plan was sufficiently addressed. Feedback showed that the staff development plan consisted of the details to help ensure the plan is successful.

The idea of differentiation was highlighted in the staff development feedback. The volunteers are going to be from different levels in terms of their knowledge and comfort with the iPad. The plan did not give sufficient detail to specify what exactly will happen at each session. The sessions need to be differentiated to make all members feel at ease throughout the professional development.

There were some questions raised about the process for requesting applications for the iPads, which was considered vague and needed to be clearer. Also there was some concern about the library media specialist being the only person allowed to add applications to the iPads. This was deemed a lot of work and it could overload one person. In chapter five I address the feedback and make recommendations for iPad professional development.

Chapter Five: Conclusions

Recommendations

The possibilities with the iPad in the hands of students are endless. The iPad provides a potential for students to truly engage and take ownership in their learning. It is very likely that the iPad will be a very common tool for teaching in the near future. Because of this, it is vital that schools become early adopters, engage in meaningful research and usage, and incorporate this new technology into the new normal for teaching (Brooks-Young, 2011). The iPad is gaining popularity at a rate unseen by previous types of technology, the future of technology proves to be moving at a faster rate than at any other time in history.

Teachers will learn some things about the iPad through trial and error. However, it is also important for teachers to learn how to learn about technology through professional development. It is recommended that school districts implement a differentiated and detailed professional development opportunity. According to Ham (2010) it is essential that teachers stay as current as possible on best practices in the world of education. It is no different when discussing the uses of the iPad. Differentiated professional development can help educators with best practices. It is also recommended that the professional development use some of the protocols from the Critical Friends Model (National School Reform Faculty & Harmony Education Center, 2000). These protocols help keep the trainings from being sidetracked. The protocols also use specific models to achieve the desired goals. One example is the Charrette Protocol, where an outside person or group reviews the project from a third party perspective to recommend ways to improve it. The goal of the Charrette Protocol is to improve a project when it is still in the development process.

Loading iPads with the necessary applications can be a long and tedious process. It is recommended that school administrators assign one educator to be in charge of general management of the applications and the iPads. This number could change depending on the number of iPads in the school and the type of implementation being deployed. It is suggested that a detailed application process is created. This process should discuss when these proposals can be submitted and when the application, if approved, will be loaded. Also there should be a detailed plan on the approval process for the applications. There should be no need for arguments over applications. The application either passes the approval or it does not. Applicants will need to consider available sources of funding for the fee-based applications.

Evaluation of any product is always a critical piece to determine the value. A handbook on implementation strategies is no different. The professional development should be differentiated; I would suggest a pre-training survey to gather information about the participants. Administrators should advocate for an evaluative survey at the end of the process. It is vital to receive formative feedback on long-term professional development. There should be at least two different surveys. One of the surveys should be developed for the teachers who participated in the implementation process. The teacher survey would target both the professional development and the handbook in general. The other survey should be intended for students. Student feedback is extremely important and is often overlooked in education. Results from these surveys will allow the handbook to be modified as necessary.

Limitations

The major limitation of this handbook is that it has not yet been implemented in the target district. The handbook was developed through research and discussion with professionals in

external districts. The target school district will be receiving iPads for the 2012-2013 school

year. The handbook may be changed drastically after the first year. This leaves a lot of questions

unanswered. There will be a variety of factors and changes that occur when the iPads actually

arrive. The same is true for the planned professional development. The products from this project

help to ensure the planning is in place.

Another limitation is that the handbook was written from the perspective of a library

media specialist with the idea that the iPads would be circulated through the library media center.

The handbook was written in a way that could easily be adapted for a different setup. Also the

implementation strategy was specific to one school district. Each school district has different

rules and regulations when it comes to technology and the fair use of the Internet. The handbook

will need to be changed a great deal to fit into other districts.

Future Direction

The iPad could possibly be a game changer in the world of education. One way or

another students, teachers, and administration are going to have to get used to the idea of the

blending technology into their everyday life. The world is becoming more and more digital and

the iPad is separating itself from the other devices. With its sleek look and versatility the iPad, at

this point, is head and shoulders above the rest. This means a great deal to the world of

education. Education is set up for students to gain certain types of knowledge, while cultivating

their creativity, innovation, and problem solving skills. The iPad provides the perfect platform to

do this. The iPad has demonstrated the potential to impact students at every level. The flexibility

to differentiate for all types of learners is a very powerful tool. The iPad will force many to adapt

their teaching and learning style to fit the 21st century mold that the iPad is building and using (McCombs, 2011).

There is research that suggests the iPad is an extension of a desktop. Murray and Olcese (2011) suggest the iPad provides few applications that extend the capabilities of the students. The applications need to take advantage of the hardware and operating system to better support 21st century skills. It is suggested that the iPad will not revolutionize teaching and learning until this takes place. Conversely Allyn (2011) believes that the iPad is innovation at the fingertips of students. The research suggests the iPad provides all the necessary tools to truly change the course of education. Currently there is a conundrum around the research of iPads in schools. Only time will tell which trajectory the iPad will take.

It has become obvious that schools are moving towards touch technology, specifically the iPad. Therefore, an implementation handbook (Appendix B) that provides the framework necessary is needed to guide schools through this change in teaching and learning. There will be different challenges that arise during this process, having a handbook at the foundation of this process will give the schools a necessary starting point. Much of the research around iPads in schools demonstrates a lack of trainings for the teachers.

Professional development is a key aspect of being a teacher. There are constant changes in education and it is hard to stay on top of changes in technology, let alone best practices. Having a research-based professional development training offered to staff can build strong relationships and give teachers the tools that are necessary (McLester, 2011). The professional development outlined in Appendix B will be carried out in the fall of 2012. The participants will evaluate the trainings offered each week. The evaluation tool will be a survey (Appendix D). The

survey will change as the trainings proceed throughout the school year. Each training session has a specified result and the surveys will help guide the speed and effectiveness of the training sessions. A survey is not the perfect tool to evaluate the trainings but it is a start.

The scope of implementing iPads into schools is very daunting. Each step of this process will need to be evaluated for the effectiveness along the way. School administrators will need to develop an evaluative tool to test the actual student use of iPads. This can be difficult as a variety of factors can contribute to a student's academic performance and experience. School districts are just starting down this path. The hope is that the implementation handbook can provide the framework and stepping-stones needed to begin this process.

There is a strong belief that technology, such as the iPad, is truly the new wave of learning for future generations. Educators around the nation recommend that school districts work to incorporate these types of technological advances as soon as possible. While the needs of students vary widely based on factors such as socio-economic status, population, and even geographical location, there is a common thread that ties the teaching world together. By using more universal teaching tools, such as technological tools like the iPad, we can create a stronger national network of teaching and learning for our students. Advancements in our world today are growing at very high rates, and we, as educators, can't afford to fall behind in adopting and utilizing these important tools.

References

Allen, J. (No date). Designing professional development for teachers. Waterville Public

Schools, Waterville, ME. Retrieved from http://www.stenhouse.com/pdfs/rstfocus.pdf

Allyn, P. (2011). Against the whole-class novel. *Education Week*, *30*(35), 27-29. Retrieved

from EBSCOhost.

Angel, S. (2011). Imagine rembrandt with an iPad. *Maclean's*, *124*(39), 78. Retrieved from

EBSCOhost.

Astall, C. (2011). iPod touch and science teaching. *New Zealand Science Teacher*, (*127*), 40.

Retrieved from EBSCOhost.

Banister, S. (2010). Integrating the iPod touch in K-12 education: Visions and Vices.

Computers in the Schools, *27*(2), 121-131. doi:10.1080/07380561003801590

Baskerville, D., & Goldblatt, H. (2009). Learning to be a critical friend: From professional

indifference through challenge to unguarded conversations. *Cambridge Journal of*

Education, *39*(2), 205-221. doi:10.1080/03057640902902260

Brooks-Young, S. (2011). Tablet devices: Taking education by storm? *Today's Catholic*

Teacher, *45*(1), 18-25. Retrieved from EBSCOhost.

Deal, W. F. (2008). Communication technology: The magic of touch. *Technology Teacher*,

68(2), 11-18. Retrieved from EBSCOhost.

Doherty, I. (2011). Evaluating the impact of educational technology professional development upon adoption of Web 2.0 tools in teaching. *Australian Journal of Educational Technology*, *27*(3), 381-396. Retrieved from EBSCOhost.

Ellis, S. (2011). Teaching the future. *Screen Education*, *63*, 60-64. Retrieved from EBSCOhost.

Furfie, B. B. (2010). Is the iPad a game changer? [Tablet computer from Apple]. *Engineering & Technology* (17509637), *5*(4), 34-35. doi:10.1049/et.2010.0406

Ham, V. (2010). Participant-directed evaluation: Using teachers' own inquiries to evaluate professional development in technology integration. *Journal of Digital Learning in Teacher Education, 27*(1), 22-29. Retrieved from EBSCOhost.

Li, S. C., & Pow, J. C. (2011). Affordance of deep infusion of one-to-one tablet-PCs into and beyond the classroom. *International Journal of Instructional Media*, *38*(4), 319-326. Retrieved from EBSCOhost.

McCollum, S. (2011). Getting past the 'digital divide'. *Education Digest*, *77*(2), 52-55. Retrieved from EBSCOhost.

McCombs, B. (2011). Apple's new iPad -- tool or toy? *Canadian Journal of Rural Medicine*, *16*(1), 31-32. Retrieved from EBSCOhost.

McLester, S. (2011). Establishing a technological culture. *District Administration*, *48*(8), 32-34. Retrieved from EBSCOhost.

Murphy, G. D. (2011). Post-PC devices: A summary of early iPad technology adoption in

   tertiary environments. *E-Journal of Business Education & Scholarship of Teaching*,

   5(1), 18-32. Retrieved from EBSCOhost.

Murray, O., & Olcese, N. (2011). Teaching and Learning with iPads, Ready or Not?

   Techtrends: Linking Research & Practice To Improve Learning, *55*(6), 42-48.

   doi:10.1007/s11528-011-0540-6

National School Reform Faculty & Harmony Education Center. (2000). *National School

   Reform Faculty resource book: Adult learning in the service of student achievement*.

   Bloomington, Ind: Harmony Education Center.

Palser, B. (2011). The ins and outs of iPad apps. *American Journalism Review*, *33*(1), 46-51.

   Retrieved from EBSCOhost.

Pierson, M., & Borthwick, A. (2010). Framing the assessment of educational technology

   professional development in a culture of learning. *Journal of Digital Learning in

   Teacher Education*, *26*(4), 126-131. Retrieved from EBSCOhost.

Polly, D. (2010). Reexamining technology's role in learner-centered professional development.

   Educational Technology Research & Development, *58*(5), 557-571. Retrieved from

   EBSCOhost.

Quillen, I. (2011) Tablet culture. *Digital Directions*, *11*(3), 38-41. Retrieved from EBSCOhost.

Quinney, K. L., Smith, S. D., & Galbraith, Q. (2010). Bridging the gap: Self-directed staff

technology training. *Information Technology & Libraries*, *29*(4), 205-213. Retrieved

from EBSCOhost.

Schools release iPad studies. (2011). *BizEd*, *10*(4), 60-68. Retrieved from EBSCOhost.

Smolin, L., & Lawless, K. A. (2011). Evaluation across contexts: Evaluating the impact of

technology integration professional development partnerships. *Journal of Digital

Learning in Teacher Education*, *27*(3), 92-98. Retrieved from EBSCOhost.

The teardown: Apple iPad 2. (2011). *Engineering & Technology* (17509637), *6*(5), 94-95.

doi:10.1049/et.2011.0532

Walters, E. A., & Baum, M. (2011). Will the iPad revolutionize education? *Learning &

Leading with Technology*, *38*(7), 6-7. Retrieved from EBSCOhost.

Waters, J. K. (2010). Enter the iPad (or Not?). *T.H.E. Journal*, *37*(6), 38-40,. Retrieved from

EBSCOhost.

Appendix A

Implementation Survey: Guiding Development for Handbook

Does your school/district have a written policy regarding the use of iPads? If so, could you share it with me?

How to best to use iPads with students:

How are iPads circulated? What are the security measures?

Who selects apps? Who installs apps?

What role should the district/building tech department play in implementation and rollout?

What type of training was provided for teachers? Students?

What was the biggest challenge in implementing? In on-going use?

What are some best practices with the iPad in your school?

Other Comments:

Appendix B

iPad Implementation Handbook

iPad
It has become evident that the introduction of tablet computers to the district can have a profound effect on teaching and learning. It has the potential to change the way teachers teach and students learn. In order to determine if there is an effect on teaching and learning, this plan is being developed to outline the process for implementation, professional development and assessment of iPads in classrooms.

The iPad is a tablet computer, which was created and designed by Apple. It is recommended that my school purchase the new 32GB Apple iPad 2 for the pilot study. The iPad will undergo changes in the future. It is recommended that anytime my school is looking at purchasing another device, the technology committee researches and recommends the device for purchase. The iPad 2 will allow for my school to get the most out of the product. The battery on the iPad 2 should last about nine hours. The introduction of a new iPad (the iPad 3) was being predicted to occur in March 2012. A decision was made to wait to purchase the iPads for the district when the new iPad was on the market. In March Apple introduced what is simply being called the new iPad (not the iPad3 as everyone anticipated). The new iPad was released for sale on March 16, 2012. The price of the new iPad is the same as the original price for the iPad2. ($499.00)

Vision Statement for the School District

Our vision is supported by the district belief statement, "We believe in culturally relevant education that provides the knowledge and skills to meet the global challenges and opportunities of the 21st Century" and the parameter that "A culture of creativity and innovation is nurtured." We believe that we have an institutional obligation to provide students and staff skills and access in which technology is blended naturally into the teaching and learning process. That will require us to provide students and staff with the resources and professional development necessary to enhance the quality of teaching and learning, so that all district students are able to reach their highest potential and which will help to eliminate achievement gaps.

The six broad principles below will help shape our vision as we begin our journey into developing a student who is technologically literate.

Adaptability: preparing students to meet current and future challenges by giving them a foundation in technology skills.
Creativity: encouraging students to tackle problems in new ways.
Collaboration: teaching kids to use technology to engage and interact.

Innovation: Encouraging students to engage problems, technological or otherwise, challenging students to find innovative solutions.

Productivity: teaching students strategies to increase their efficiency through technology.

Ethics: teaching students the ethical, acceptable and appropriate use of technology.

Objectives/Key Questions

Use of the iPad as a tool in the classroom models will:

- improve/transform teaching and learning.
- supplement the curriculum.
- promote collaborative, independent, and differentiated learning.
- improve student engagement in school.
- improve/enhance academic achievement.
- increase student motivation.
- raise the attendance rate.
- develop a set of best practices for implementing the iPad in the classroom.

Key questions to answer using an iPad as a tool in a 1 to 1 classroom model or cart based model:

- How will the iPad supplement the curriculum?
- How will the iPad change teaching and learning?
- Will the iPad effectively engage our learners?
- Will using the iPad improve academic achievement?
- Will using the iPad increase student motivation?
- Will the attendance rate be improved?

Purchasing the iPad

Apple products, such as the iPad, can be purchased through the district. The school district works closely with Apple.

- Vendor: The only vendor that can be used to purchase iPads is Apple.
- Price: The 32GB iPad 2 costs $599.00 (April 1st 2012)

Security and Initial Setup

My school's library media center (LMC) will house 30 iPads on a Bretford storage and syncing cart. The mobile cart will ease the management issues that may arise with the iPad. The cart allows for syncing of all 30 iPads at once. The cart will also be equipped with a MacBook computer to complete all of the syncing for the devices. The MacBook will be configured with Lion OSX as of April 1st 2012. It is also recommended that the library media specialist use Configurator to set up the iPads. This allows one iPad to be the master. Security is a major issue with iPads. It is recommended that the school always keep the cart locked up when not in use. It is vital to have a designated staging area for the devices. This location should be secure and allow the library media specialist the space needed to set up the iPads and store them safely.

Deployment Strategy

All iPads will follow an Institutional Ownership model. This model will guarantee that the institution will own all applications and other media put onto the iPad. The sync station will not be linked to a credit card. Only the authorized personnel will be able to sync the iPads. The library media specialist will be in charge of syncing all iPads. Teachers and students will not be able to use personal iTunes accounts on the school's iPads. More information can be found at:
http://www.apple.com/education/resources/information-technology.html

Set up at district level. Follow the steps below to set up an Institutional Ownership model:
1. Sync the required institution applications to the device. Complete the iOS5 setup assistant.
2. Customize setting and restrictions on the device (IT will help with this part).
3. Place icons in folders.
4. Enroll the device in MDM.
5. Disable App Store.
6. Deploy devices.
7. Follow steps for using sync cart (below) to begin syncing desired apps

Set Up of iPads at Building Level

1. Have your IT create a general LMC email to set up as ID for iTunes.
   a. Create a new OS X account for the end user.
      i. Use the school designated Apple ID.
      ii. Consider setting the Short Name to match the user name of the iTunes account email address.
   b. Log in to the Mac using the OS X account created in the previous step.
   c. Configure iTunes.
      i. Launch iTunes and create a new iTunes account without a credit card using the email address created for it.
      ii. Authorize iTunes to use this iTunes account by choosing Authorize This Computer from the Store menu.
   d. Download required free apps.
   e. Add other media to the iTunes library such as audio, video, ePub documents, PDFs, or podcasts (if applicable).
2. The district will set up the Volume Purchase Program. The district will install a few district level applications. The rest of the applications will be managed at school level. A manager will be assigned. Information is located here: http://edu-vpp.apple.com/asvpp.html.
3. Fully charge all iPads. This will take a few hours the first time, so do it ahead of time.
4. Unplug and remove all iPads from the cart.

5. Apply labels and label covers on the iPads (one applied directly to the iPad itself and a second one applied to the outside of the iPad cover) with information that conforms to district standards.
6. While you are setting up your iPads, create a spreadsheet of your iPads containing the unique names you are assigning your iPads in iTunes and the district Asset Tags.

Registering iPads, Syncing iPads, and Updating iPad Software

7. Purchase the applications for the iPads. The iPads will be updated once a week.
8. Sign into iTunes using your Apple Volume Purchase Program username and password.
9. Connect the first iPad in the first bay and follow the following steps:
    a. In Apple Configurator, click Prepare.
    b. The badge in the upper-right corner of the Prepare icon indicates the number of currently connected devices.
    c. Click Settings, and set Supervision to On or Off. Set Supervision to Off if you want to configure a device once with Apple Configurator. Set Supervision to On if you intend to maintain control of a device on an ongoing basis by reapplying a configuration regularly. For information about supervision, see Configure a supervised device.
    d. Specify configuration details:
        i. Name: Enter a name for the devices. To add a sequential number to the name of each device, select "Number sequentially" below the name and change the number if you don't want to start at 1.
        ii. iOS: Choose the version of iOS to install. Choose No Change to leave it as is. Choose Latest for the latest version of iOS available from Apple. Choose "Other …" to install an .ipsw file (downloaded from the iOS Dev Center at developer.apple.com/devcenter/ios/, for example). Installing a new iOS version erases all data from the device.
        iii. Restore: To install a recently saved backup choose it from the list. If you're preparing an unsupervised device and you don't want to delete its current data and settings, choose Don't Restore Backup. You can also choose Other to find and pick a backup file you saved on your Mac (created by either Apple Configurator or iTunes). When preparing supervised devices (the Supervision switch is set to On), choosing Don't Restore Backup won't restore any backups, but all content and settings on your device will still be erased. For information, see Back up and restore unsupervised devices.
        iv. Profiles: Select the configuration profile to install. You can also create new configuration profiles. For information, see Using a configuration profile.
    e. If you're not installing a new iOS version, select "Erase all content and settings" to erase the device.
    f. Click Apps and select the apps you want to install on the devices.
    g. For information about adding apps to the list, see Install apps.

      h.   Connect devices to USB ports on the computer, and click the Apply button.
      i.   A checkmark shows when each device is done. As each device finishes, you can disconnect it and connect another device.
      j.   Connect additional devices until all devices are configured, and then click the Stop button.

Storage

1. All iPads should be stored in the Bretford syncing cart.
2. The cart should be kept in a safe place in the LMC during the day.
3. iPads should be charged periodically throughout the day when not in use.
4. The cart will be stored in the equipment room at the end of the day.
5. The iPads should never be charged overnight.
   a. Setup of Bretford syncing cart

Applications

The iPads will be updated through the cloud. The applications will be installed and managed using the Bretford syncing cart. Teachers will be able to request applications by filling out the request sheet. This sheet will give the name of the application and reasoning behind the request. The technology team will review each request once a week and the library media specialist will load the necessary applications once a week using the MacBook Pro that is attached to the Bretford syncing cart. The school will provide the predetermined applications. Other paid applications will have to come out of the department budget. There are numerous websites that provide detailed lists of quality educational applications, for example http://www.livebinders.com/play/play/36989.

Internet Security

Internet security is a major issue. All iPads will be imaged and linked to the district network. The IT will network and lockout the iPad to ensure that the iPads will only be synced by the library media specialist or designated person. Students will follow the same Internet and fair use policies that are signed at the beginning of the year.

Teacher Professional Development

The purpose of this section is to describe the professional development (PD) plan for administrators and educators using iPads, which includes school purchased and district purchased iPads. The main focus of this plan is on teacher PD, which is crucial to successfully using the iPad to improve teaching and learning. Allan Odden argues that educators need at least 10 substantive professional learning opportunities per year to result in improvement.

This plan stems from a strong research base on sustained, collaborative, job-embedded professional learning that is consistent with 2011 National Staff Development Council Standards. For instance, teachers using iPads are organized into teams that regularly collaborate and learn

from one another. Additionally, a district iPad coach - pending Board of Education approval as part of the Achievement Gap Plan - will coach "laboratory" classroom teachers for just -in-time, job-embedded learning. These lab classrooms, in turn, serve as sites for professional learning.

The professional development will be differentiated. I will send out a survey before the trainings occur. The survey will gauge the awareness and comfort level of the participants. This will allow me to adjust the trainings as necessary. There will be a variety of formative assessments throughout the professional development. This will allow for me to differentiate as needed.

Long-term iPad PD outcomes
1. iPads will be used by teachers for either substantially redesigning student learning tasks or student creation of new tasks.
2. Teachers will integrate iPads as a learning device with district curricula and practices to help increase student engagement, improve students' 21st Century learning skills, and improve the academic learning of disaggregated student groups by 10% percentage point increases on district benchmark measures.

Guidelines
- iPad PD will be coordinated and aligned under the broad umbrella of the district Instructional Technology Cadre, which connects to an existing network of teachers using technology in instruction
- All teachers using iPads will have ample opportunities, and are required to, participate in iPad workshops through Apple PD or District PD. Most of the district workshops will be presented or facilitated by a district iPad Coach, pending Board of Education approval.
- All teachers using district purchased iPads should be part of a school-based iPad team that meets and collaborates at least 2 hours per week. This team will meet during professional collaboration time. This time is built in to school hours every Monday. This training will be led by the building iPad coach. All who own an iPad are welcome to attend.
- Required PD. All teachers using district purchased iPads must participate in the two required PD workshops before they will be able to use the iPads in the classrooms (iOS Devices, Mac OS). Ideally, teachers would participate in teams. All teachers using district purchased iPads must participate in a minimum of 4 additional workshops during the year and participate in a culminating Showcase Day.
- PD for administrators and others not using iPads directly in classrooms will be customized and scheduled for particular group needs (e.g., using productivity tools).
- The registration for all iPad PD workshops will be on the new PD Portal, which is housed in the same environment as the ePDP system (same username, password).

Optional PD
- **Authoring Content:** Access to a MacBook is optional, but some demonstration on content syncing will be done here. Participants will learn to create ePub documents, podcasts, videos with iMovie, or presentations with Keynote. The outcome is to develop instructional products for students using the iPad. (1 day, 20 people)

- **Collaborate and Share:** Access to a MacBook is optional. Participants will learn about collaborative tools for teachers and students sharing with local and global communities through blogs, wikis, presentations and apps. (1 day, 20 people)

Professional Development Calendar 2012-13

Subject to Change. Additional workshops may be offered depending on demand. Calendar courtesy of district iPad committee.

Date	Topic Required/Optional	Who can Participate	Provider	Location
7/31/12	iOS devices, 8:00 - 3:00 required	District iPad Users	Apple	TBD
8/1/12	Mac OS required for anyone using Mac with cart. 8:00 - 3:00	District iPad Users	Apple	TBD
8/2/12	iOS devices, 8:00 - 3:00 required	School or District iPad Users	Apple	TBD
8/3/12	Mac OS required for anyone using Mac with cart. 8:00 - 3:00	School or District iPad Users	Apple	TBD
8/6/12	iOS devices, 8:00 - 3:00 required	School or District iPad Users	Apple	TBD
8/7/12	Mac OS required for anyone using Mac with cart. 8:00 - 3:00	School or District iPad Users	Apple	TBD
8/8/12	Collaborate and Share 8:00 - 3:00	District iPad Users	Apple	TBD
8/9/12	Authoring Content. 8:00 - 3:00	District iPad Users	Apple	TBD
8/17/12	August 17th iPad Kickoff and Vision provided by MMSD to launch the new school year - introductions, iPad vision and updates 9:00-10:30	All staff	District	TBD
8/21/12	Collaborate and Share 8:00 - 3:00	School or District iPad Users	District	TBD
8/22/12	Authoring Content 8:00 - 3:00	School or iPad users	District	TBD

9/6/12	4:30 to 6:00: Workshop	School or District iPad Users	District	TBD
9/20/12	4:30 to 6:00: Sharing Practices	School or District iPad Users	District	TBD
10/18/12	4:30 to 6:00: Workshop	School or District iPad Users	District	TBD
11/15/12	4:30 to 6:00 Laboratory Classrooms	Laboratory Classrooms	District	TBD
12/13/12	4:30 to 6:00: Sharing Practices	School or District iPad Users	District	TBD
1/10/13	4:30 to 6:00: Workshop	School or District iPad Users	District	TBD
1/24/13	4:30 to 6:00: Sharing Practices	School or District iPad Users	District	TBD
2/28/13	4:30 to 6:00 Workshop	School or District iPad Users	District	TBD
3/21/13	4:30 to 6:00 Laboratory Classrooms	Laboratory Classrooms	District	TBD
4/18/13	4:30 to 6:00 Sharing Practices	School or District iPad Users	District	TBD
5/16/13	4:30 to 6:00 (FINAL SHOWCASE DAY)	School or District iPad Users	District	TBD
6/6/13	4:30 to 6:00: Final reflections, wrap up school year	School or iPad users	District	TBD

Note: Anticipate a similar schedule for future PD

Forthcoming Additional Opportunities for iPad Professional Development
- Coaching for Laboratory Classrooms
- Visiting Lab Classrooms
- Videos of iPad practices on the district **PD Hub** site
- Visits to other districts using iPads
- Student-led iPad PD
- Self-organized professional learning groups or cohorts

Student Training
Students will be trained how to use the iPad by their teachers. The teachers will have gone through the training provided. The training will take place in the LMC during the first checkout of the iPads. Students will follow the general rules and fill out the student contract.

General Management of iPads for iPad Administrator

Circulation

1. All iPads will stay at school.
2. iPads will be circulated to classrooms and students for specific projects. There are around 2100 students at my school. I expect one to three classrooms using the iPads during the day, depending on demand.
   a. Teachers will schedule iPads through the library media specialist.
   b. The cart will have a sign up.
   c. The media specialist will put sign up in a Google Calendar for staff to follow.
   d. This is not first-come-first-serve basis. Teachers must work with library media specialist to schedule.
3. Students will not be able to take iPad home for any reason.
4. Number and color-code each iPad as wallpaper on the screen.
5. Number and color-code each iPad on the device using various covers.
6. Assign color code groups of iPads according to tables; assign specific students to use each number.
7. Label slots on the charging cart, so they are returned to the correct slots.
8. Keep baskets of micro-fiber fabric swatches on tables, so students can clean the screen after each use or at the beginning of the next class.
9. Use table-top baskets to hold iPads at each table.
10. Have students take iPads off the cart and return them to the cart by calling them in groups (e.g. iPads 1-5 blue, iPads 6-10 orange, etc.).
11. Instruct the students how to return the iPads to the cart so that the sync ports are lined up uniformly for ease of attaching the cables.

12. Assign a student to supervise as iPads are returned to cart to ensure correct placement of units.
13. DON'T allow students to attach or detach the cables.

Management

1. General Precautions

   a. The iPad is school property and all users will follow these procedures and the district Acceptable Use Policy for technology.
   b. Only use a clean, soft cloth to clean the screen; no cleansers of any type.
   c. Food/liquids/moisture should be kept away from the iPad as they can cause damage to the device.
   d. Cords and cables must be inserted carefully into the iPad to prevent damage.
   e. iPads must remain free of any writing, drawing, stickers, or labels that are not the property of the school district.
   f. LMC staff or teachers will monitor student use.
   g. Students will not remove covers of iPads.
   h. iPads will not be put in bookbags.
   i. Students or teachers will not download apps to the iPad.

2. School Responsibilities:

   a. Provide Internet wifi access to its students.
   b. Provide Internet blocking of inappropriate materials as able.
   c. Provide network data storage areas. These will be treated similar to school lockers. The school district reserves the right to review, monitor, and restrict information stored on or transmitted on the iPad. We are currently waiting for the district to decide on either Dropbox or eBackpack.
   d. Provide staff guidance to aid students in doing research and help assure student compliance of the Acceptable Use Policy.

3. Students' Responsibilities:

   a. Use computers/devices in a responsible and ethical manner.
   b. Obey general school rules concerning behavior and communication that apply to iPad/computer use.
   c. Use all technology resources in an appropriate manner so as to not damage school equipment. This damage includes, but is not limited to, the loss of data resulting from delays, non-deliveries, miss-deliveries or service interruptions caused by the student's own negligence, errors or omissions.
   d. Help to protect our computer system/device by contacting an administrator or a facilitator about any security problems they may encounter.
   e. Report any damage or errors that may occur on the iPad.
   f. Turn off and secure their iPad after they are done working to protect their work

and information.
g. If a student should receive email containing inappropriate or abusive language or if the subject matter is questionable, he/she is asked to show a copy to the office.
h. Return his or her iPad to the facilitator at the end of each school day or class period.
i. Heavy objects should never be placed or stacked on top of the iPad. This includes books, musical instruments, sports equipment, etc.
j. Any inappropriate or careless use of the iPad should be reported to the teacher immediately.
k. Students should report any damage from the previous student to the teacher at the beginning of the period.
l. Students will not remove the iPad from the classroom without the teacher's permission.
m. Do not do anything to the iPad that will permanently alter it in any way.
n. Use both hands when carrying the iPad.

Evaluation

The handbook and implementation will be evaluated during the process. There will be a variety of formative assessments of both procedures. These assessments will be done by the school administration. The handbook is a working document and will be updated throughout the process. The implementation and professional development will also have a summative evaluation. This will be a survey at the end of the process. Staff and students will complete the survey. An example survey can be found in Appendix D.

Overall, the evaluation of the handbook, implementation process, and professional development will rest with the assessment of the effectiveness of these tools compared to the objectives of this process. The main theme with the objectives is to provide a clear path to implementing the iPads, including on-going training and development for improving usage. For example, to assess the goal of providing a clear path of implementation, assessments can be made in comparing the given timeframes in the handbook to actual implementation dates. Feedback will be received from teachers on the pace of the implementation, as well. Evaluation is vital to the ultimate success of this, and will require active involvement from all those included in the process.

Appendix C

Sample Student Pledge for iPad Use *(to be signed by each student the first week of school)*

- I will follow all of the rules as stated in the Student Handbook and Acceptable Use Policy.
- I agree that any inappropriate use of the iPad will result in school discipline that may include the loss of iPad use and school suspension. Inappropriate use includes but is not limited to:
    - o Visiting inappropriate websites
    - o Possessing inappropriate pictures and/or media files
    - o Cheating
    - o Installing unapproved applications
    - o Deleting installed applications
    - o Deleting or changing another student's work in any application
    - o Jailbreaking the iPad
    - o Changing the background
- I will take good care of the iPad assigned to me.
- I will keep food and beverages away from my iPad since they may cause damage to the device.
- I will not disassemble any part of my iPad or attempt any repairs.
- I will use my iPad in ways that are appropriate, meet school district expectations and are educational.
- I will not deface any part of the iPad, case, or labels.
- I understand that the iPad is the property of the school district.

I have read, understand, and agree to follow all responsibilities as outlined in the iPad Acceptable Use Agreement

Student Name (Please Print):_____

Student Signature: _____

Parent Signature: _____

Appendix D

Sample Professional Development Evaluation Survey

What was your initial reaction to the training sessions? Provide one reaction.

Did you acquire new knowledge or skills? List at least two new skills.

How will you implement this new knowledge or skill in your classroom?

How can the pace of the training sessions be changed?

What else do you need to be successful?

Other comments: