USING IPAD2 FOR A GRADUATE PRACTICUM COURSE

By

LINDSEY SACHS* PRINCE HYCY BULL**

* M.A., North Carolina Central University.
** Associate Professor, Educational Technology, North Carolina Central University.

ABSTRACT

iPads and iPhones continue to impact academia, but the iPad2 provides features that could enhance teacher education programs. This paper addresses how eight graduate students and a faculty used iPad2 to support a graduate practicum course. Participants were asked to report how they used their iPad2 each week in the form of a written log and complete a survey after seven weeks. Participants used the camera or video feature to create educational tutorials, record video logs, record interviews, capture student footage for parent night presentations, record guest speaker presentations for future playback, archive students acting in performances for homework instruction, document follow up communication after professional development sessions. Others used Apps to improve delivery of instruction and record student collaborative group work with video and camera footage. Over 86% of respondents agreed or strongly agreed that if given a class set of iPad2's, student learning and performance would improve.

Keywords: i Pad2, Mobile Technologies, e-learning.

INTRODUCTION

Today's K-12 teachers are educating millennial students who are surrounded by the influences of technology, most of which has become increasingly mobile. Not only are students and teachers exposed to the influx of information that the Internet provides via at-home computers, but mobile devices have now made it possible to have access to up to date information anytime, anywhere. "Millennial" students are not only attuned to having on demand information available at their fingertips, but they expect it. This expectation prevails in the educational environment. As teachers seek ways to meet these expectations, motivate students and become more efficient and effective in their efforts to prepare them for the demands and challenges of a globally competitive society, they are examining mobile devices as educational tools. This research addresses how educational technology graduate students, who are also full time teachers, used the iPad2 in their classroom during the course of an eight-week practicum. The research and discussion explores the pros and cons of their experience and their perceptions of the device as an educational tool.

Literature Review

Mobile devices include cellular phones, personal digital assistants (PDAs), MP3 players, smart phones, portable game devices, handhelds, tablets and laptops. Making use of technology that is better suited to deliver knowledge and resources in real-time is becoming a necessary skill to meet the needs of 21st century learners, (Gupta & Koo, 2010). Mobile technologies enable learners to learn anytime, anywhere, transforming e-learning into mobile learning (m-learning). One of the mobile devices that has the potential to boost students' performance is Apple's iPad2 tablet. For example, the Bancroft School in Massachusetts is requiring its students in grades 6-12 to have an iPad to use at home and school by the 2012-2013 school year. The iPad2 has the potential to enhance learning as students and teachers use them to create content that includes audio, video, and graphics as well as having access to primary data sources through Internet connectivity. The tablets are small and light enough to make them easily portable, unobtrusive in the classroom because they offer immediate access to information through their ability to be turned on and off instantly, and have sufficient battery power to last an entire school day

(Kennedy, 2011; Waters, 2010). School administrators in Auburn, Maine are examining the effectiveness of mobile learning at a very early age by providing iPad2s for each of their kindergarten students in an effort to improve reading and math performance of their third grade students from the current 60% range to 90% in 2014-2015 (Kennedy, 2011).

There is debate whether iPads provide additional benefits to students who already have access to laptop computers or other mobile devices in the classroom environment. Baum and Walter (2011) point out that the tablet is a "new platform for classroom computing." They highlighted the importance of moving from long-term projects based on specific software applications with steep learning curves to smaller-scale activities that utilize more user-friendly iPad applications (Baum & Walter, 2011). Julie Bohnenkamp, director of technology for Center Grove Community School Corporation in Greenwood, Indiana, which launched an iPad program in 2010, points out that the iPad applications are "easily accessible once they're downloaded. They're just there for the students" (Waters, 2010). When compared to the cost of textbooks or other software applications where individual licenses must be purchased for each user and must be replaced or updated regularly, iPad apps can provide an affordable alternative for schools facing budget constraints. In the summer of 2011, Marymount School also encouraged its teachers to explore how they could redesign their curriculum using $200 toward the purchase of iPad apps, which could assist in creating innovative lessons and activities for students. The authors argue that it would have been difficult for teachers to be successful in this endeavor and the results would not have been as immediate if the same investment would have been put toward subject-specific software for computers in the classroom (Baum & Walter, 2011).

Baum and Walter (2011) discuss that the portability and touch-screen interaction of the iPad set it apart from laptops. The tablet allows students to develop kinesthetic and spatial/visual skills while reaching the creation level of learning as outlined by Blooms Taxonomy. Dana Hoover, assistant chief information officer for communications and planning at Pepperdine University, states that the iPad and other tablets can facilitate collaboration and engagement more effectively than laptops because laptop screens can create a physical barrier for discussion and sharing and can hide unrelated web browsing (Wieder, 2011). Educators are examining how the iPad can complement laptops, desktop computers and other keybound devices, instead of displacing them. Waters (2010) notes the importance of giving students access to many mobile devices so they are able to learn how to select the right tool for the right job. Barnes and Herring (2011) also concludes that iPads could help students with their organizational skills, which could in turn impact their learning. Many students struggle to scribble down notes during lessons. If teachers provide lesson materials electronically to students in advance, then students could spend more time listening to the content in a lesson, thus improving their understanding. Students can use apps, such as School Notes Pro, to take notes on their iPad through several modalities, such as drawing, recording audio clips, typing, taking pictures, etc. which they can review later.

Research also shows that other handheld devices such as cell phones and smart phones can provide useful applications in the educational environment. A phone's built-in camera can be used to create video clips or video blogs, access collaborative tools or websites and help students to work collaboratively through the use of text messaging (Christman, Lucking & Wighting, 2010). The use of a qwerty keyboard, a touch screen, built-in GPS, the ability to read documents in formats such as PDF, software for playing music, browsing photos, viewing video clips and browsing the internet are also features of smart phones that could benefit students in their learning environment (Christman, et al., 2010). The iPad offers a plethora of opportunities for differentiation in the classroom as teachers are challenged to meet the needs of all students. Center Grove, a district that serves more than 7,500 students in Greenwood, Indiana, is piloting iPads as a tool for students who are learning English as a second language. The preliminary results of the pilot indicate that the iPad is, "the perfect tool for [this] particular group, because [the teachers] can easily customize the iPad to the different languages [their] students [speak] and [they]

can enable accessibility features that turn text to speech" (Waters, 2010).

In addition to being a useful tool for students who are learning English, the text to speech feature, as well as several other iPad applications, "pave a fresh path to learning" for students with disabilities (Shah, 2011). For these students the iPad is more than just a novelty. It is a means of communication and learning that can allow a disabled student to better integrate into the classroom environment and into society as a whole. With the use of an application on the iPad called Proloquo2Go, a student with Apraxia and Down syndrome is able to scroll through pictures or choose from phrases and sentences that she often uses and the iPad speaks for her. Research shows that because the iPad is a tool that naturally attracts other students and it allows students to communicate more clearly, it can improve the self-confidence of special needs students (Shah, 2011). The compact, light design of the iPad and its range of applications replace bulky, expensive, older forms of assistive technology that students with disabilities had come to rely on. For children with poor fine-motor skills, those who have vision problems or those who have another physical disability, the size of the touch screen on the iPad is easier to see and use than a desktop computer with a mouse or a laptop with a touchpad. The tablet technology offers a sense of independence for many children and can compensate for their special needs in a way that traditional media cannot (Shah, 2010). Students with emotional or attention deficits can also benefit from the kinesthetic and multi-sensory nature of the iPad. Research shows that a student with a fear of math, an inability to sit still and limited patience was able to get to a point where he is now "happy to spend hours working on math problems" after the integration of several iPads in the classroom (Shah, 2010). It's interesting to note that the engagement that students experience with the iPad can be a motivational factor for those who would otherwise be challenged to pay attention in the school environment.

The iPad2 is not without limitations. Bohnenkamp recognizes that, "[the iPad] can't do everything. I'll pick the iPad every time for portability, research, and small projects. But when I want to work on a large project, I'll choose a laptop over the iPad. Students need access to both" (Waters, 2010). There is a need for a variety of devices to meet the various needs of students and their projects. Researchers identify several additional drawbacks to the use of the iPad in education. The iPad does not allow students to annotate texts as they are reading. Although there are several texts that can be converted to PDF documents and can be annotated through iAnnotate, there are still many texts that cannot be converted to PDF format and many electronic textbooks do not allow annotation (Wieder, 2011). Some instructors also worry that there is not a wide variety of textbooks available for the iPad, which requires special formatting. Some skeptics of mobile devices in education refer to mobile learning as "e-learning lite" because they think it delivers only snippets of coursework instead of the full breadth of information possible (Hlodan, 2010).

Lauren Barack (2010) notes that it's what educators and students do with the iPads that is valuable. In an interview with Steve Dembo, online community manager for Discovery Education, Dembo shares that,

> *"being able to store a thousand books on the device is wonderful, [but] that in itself doesn't increase student learning. When you begin combining the written knowledge with images, videos and interactive activities in a personal, intuitive interface, that's when we begin truly experiencing the future of learning" (Barack, 2010).*

While research has identified many valuable uses for iPads and other mobile learning devices in education, there are still challenges to overcome to fully implement them into instruction. Training for teachers is needed to integrate any new technology. Without knowledgeable teachers, money spent on new mobile technologies can easily go to waste. Christine Tomasino, a teaching and learning consultant, notes that research shows, "to change [teaching] practices you need 80+ hours [of teacher training]" (Briggs, 2006). Without the appropriate teacher training and an understanding of how the devices can help to personalize education and create a student-directed learning environment, the devices can become disruptions or distractions (Schaffhauser, 2011). In addition to teacher

training, technical support is crucial. There are often enthusiastic teachers who will drive the implementation of mobile technology in classrooms, but it is essential for the IT staff at a school to be on board to commit to providing support until teachers are comfortable enough to take over tech support themselves. Schools also need to stay focused on the purpose of using wireless mobile devices and how to best manage them in the classroom. It is necessary for teachers to do some additional planning ahead of time to determine how the devices will be integrated into a lesson and how to ensure that students are using them appropriately. This can take some practice and buy in from teachers (Briggs, 2006).

Methodology

In this study, eight graduate students at North Carolina Central University, who are also full time teachers in public school districts within the state of North Carolina, were given an iPad2 to use in their classrooms as part of their educational technology practicum course. There were seven females and one male who participated. Three of the participants were black and five of the participants were white/Caucasian. Participants taught in rural and urban settings. The graduate students were asked to report how they used their iPad2 each week in the form of a written log and were also asked to complete a survey after seven weeks of using the iPad2. The survey included several questions about how they used the iPad2 and their perceptions. It included questions that were based on a Likert scale as well as multiple choice and free response. The analysis of the qualitative data was based on careful review by researchers.

Data Analysis

Of the eight graduate students who participated in the study, seven reported using the iPad2 in their classroom through the weekly logs. One graduate student noted that she did not use her iPad2 in her classroom even though she was given one. While she stated she could have benefited from using the iPad in her classroom, she felt she did not have the time necessary to familiarize herself with it enough to feel comfortable using it with her students.

Those who used the iPad2 in their classrooms indicated that they used it in several different ways. Four participants indicated that they used the camera or video feature on the iPad2 for educational purposes. The feature was used to create educational tutorials, record video logs to document their daily interaction with the iPad2, record interviews with colleagues, capture student footage for parent night presentations, record guest speaker presentations for future playback, archive students acting in performances for homework instruction, document follow up communication after professional development sessions, and record student collaborative group work with video and camera footage The weekly logs and survey also indicate that more than 72% of participants were able to find useful applications in the Apple App Store to use with their students. Of the apps cited, many of them were used to improve delivery of the teacher's lessons, rather than for the purpose of direct use by students. Apps noted include Show ME, which allows the user to record voice-over whiteboard tutorials and share them online. Air Sketch, which turns the iPad2 into a wireless whiteboard and project sketches to a local computer. The Digital Dropbox app was downloaded to allow one participant to access school paperwork offsite. Snapseed, an app that allows for changes to photos, was used by one participant to adapt a photo for use in an instructional PowerPoint presentation. Apps that were used directly with students in the classroom included the following: a graphing calculator app, an audio recording app and chalkboard app. The participant who used the chalkboard app felt it was great for elementary level math small groups because it allowed students to work out their math problems as if they were writing on a blackboard. Six out of the seven respondents agreed or strongly agreed that if given a class set of iPad2's, student learning and performance would improve. Three of the participants indicated that they used the iPad2 notepad as an organizational tool and more than 72% used their iPad2 for teacher preparation purposes for 1-5 hours per week. They used the notepad as a "to do" list to manage weekly tasks related to their practicum experience and to keep track of how they were integrating the iPad2 in their classrooms. One participant stated, "I really like the notes feature."

Overall perceptions of how the iPad2 impacted the motivation of students in the classroom were positive with

four out of seven participants stating that they felt their students were more motivated to participate during lessons where the iPad2 was used. Comments from the participants include, "my students are really excited about using the iPads" and "the kids love it and are engaged the entire time!" A high school mathematics teacher notes that his students "really enjoy working with it and [they] are much quicker to adjust to the iPad than the TI-84 [calculator]. This is no surprise, because many of them like to use their phone over the calculator." Although perceptions were positive, with four out of seven respondents agreeing or strongly agreeing that their students were more motivated to participate in lessons when using the iPad, some worried about using the iPad2 with primary elementary students. One kindergarten teacher shared that "[her] students are definitely curious and want to interact with it when they get the chance, but [she's] a little concerned about some of [her] students handling it, being that it's such a delicate piece of technology."

While participants' overall perceptions of the iPad2 were positive, several challenges came up as they were attempting to use the device in the classroom. FaceTime, an application which allows the user to make video calls to other Apple users proved to be inconsistent in its effectiveness as a method of communication. Of the 15 documented attempts at using the application to communicate with others, 12 of the attempts failed. Reasons for the failed connections included, inability to connect the iPad2 to the school's wireless network, inconsistent network connections, or the person the participant was attempting to reach was not available. The inability to connect to the school's wireless network also limited the participants' ability to download apps, use the Internet or check email. When asked if they felt their school has the technology infrastructure necessary to support the use of the iPad2 in their classroom, over 57% of participants stated that they did not have the infrastructure needed to be efficient with the iPad2. One can conclude that school decision makers need to evaluate a school's technology infrastructure before purchasing tools like the iPad2.

Three of the participants stated that a lack of technical support from the IT staff at their respective schools impacted their ability to fully implement the iPad2 in their classrooms. Two participants noted that they did not have the appropriate adaptor to connect their iPad2s to the LCD projectors in their classrooms, which made it difficult to share what was on their devices with their students. A participant also stated that the lack of Java and Flash software on the iPad2 makes it ineffective as a tool because these programs are necessary to run many of the administrative tasks such as attendance, grades, schedules, and special education documentation at her school. She shared that her school administration just purchased four iPad2s, but they are "not as useful as [they] hoped, due to this concern." This participant concluded, "I'm not sure I would recommend the purchase of iPads [for my school]. I will be investigating alternatives for future purchases."

As embedded researchers in their own case study, researchers also used an iPad2 for educational enrichment. iPad2 was primarily used as a camera, video recording device during project work and field trips, and for Facetime. It was also useful during professional development workshops to take notes and pictures of the charts that were created by the presenter. It was difficult to make use of the single iPad2 directly with my students because students were all so interested in using it. It became somewhat of a distraction to decide who was going to get to use the device each lesson. Students were much more motivated to use the iPad2 for an activity than to do the same activity on a desktop computer in the classroom. A class set of iPad 2s for student use would be very effective, especially in a setting where students are engaged in project-based learning and collecting data during field work. The portability of the device makes it easy for students to record their thinking while they are on the go and easily put their thoughts and data into a presentation right from the iPad2.

Discussion and Conclusion

While many of the participants found useful ways to use the iPad2 in their classrooms (Figure 1), there are several challenges to consider when implementing this tool in the educational environment. Overall, participants were pleased with the educational applications available

through the Apple App Store. They found the apps useful for their students and many of the respondents felt a class set of iPad2s could boost student learning and performance. In addition to using apps for skill practice, participants also used the portable device to integrate visual media into lessons and access the internet with students. Participants felt the iPad2 was a motivational factor for students when it was integrated into lessons. The visual, kinesthetic nature of the iPad2 makes it intriguing for students who would otherwise struggle to be engaged by traditional methods of teaching. One participant noted that she handed the iPad2 over to a student who is usually disinterested in writing and has a difficult time writing legibly. The touchscreen on the iPad2 motivated him to complete his writing assignment without a struggle. The motivation that the iPad2 inspires is perhaps one of the greatest benefits in the classroom. Reaching students who struggle is a challenge and it's crucial for schools to continue providing technological tools, like the iPad2, to address the needs of all students. One participant expressed concern about the durability of the iPad for use among young elementary school age children. It is recommended that shock absorbing covers be purchased for iPads that are to be used by students of all ages to protect the iPad from damage. It is also suggested that Velcro be adhered to the back of the iPad and the students' workspace so the iPad is more stable and stationary for young users.

An area of concern was having the technology infrastructure necessary to connect the iPad2s to the school's wireless network and having the support of the Information Technology staff to troubleshoot problems as they arose. School district decision makers may want to take note that upgrading and maintaining a school's network and having adequate technical support is a critical piece to ensuring that the iPad2 is put to use in the classroom. The Facetime application was not an effective way for the participants to communicate with each other during the course of this study because of connection problems and difficulty scheduling times to be available to one another. It is recommended that users of the iPad2 in educational settings schedule their Facetime conversations ahead of time to increase the chances for connecting. Participants were also concerned about the lack of Java and Flash software on the iPad2, which made it difficult to view applications that require these programs and limits the function of the iPad2 in the educational environment (Figure 2). Perhaps this could be a future improvement to the next generation of iPads created by Apple Inc.

There were several limitations to the research for this paper. The small sample size was due to the limited number of iPad2s available at the University to loan to the graduate students in the Educational Technology graduate program. A larger sample could provide more insight into how the iPad2 could be used in the K-12 classroom and how teachers perceive its ability to impact student learning and performance. In future studies, it would be beneficial to sample a larger group. The participants in this study did not have any formal training for how to use the iPad2. Perhaps training on the basic functions and possible uses of

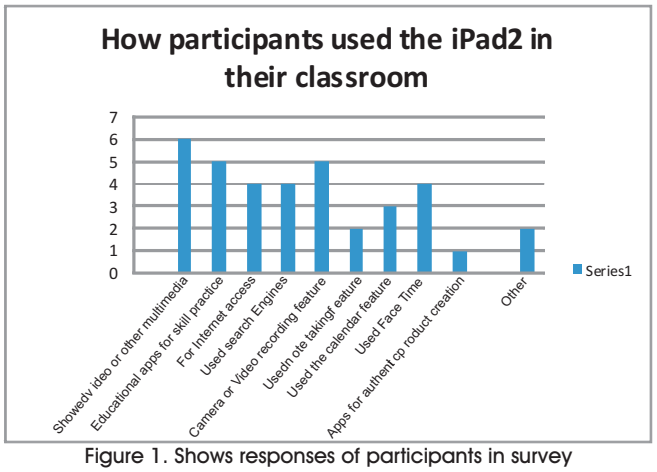

Figure 1. Shows responses of participants in survey about how they use the iPad2 in the classroom.

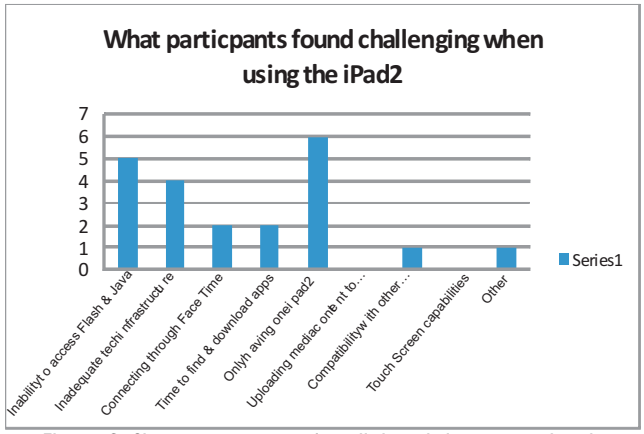

Figure 2. Shows responses of participants in survey about what they found most challenging about using the iPad2 in the classroom

the tool would help the teachers to better implement it with their students. The participants also indicated that one of the major drawbacks to using the iPad2 was that they only had one machine to work with during the course of this study, which made it difficult to use with students. The teachers indicated that if they had a class set of iPad2s, they felt they could have used the tool more often with their students, which in turn could more directly impact student learning.

References

[1]. Barack, L. (2010). *Is the iPad fit for school?. School Library Journal,* 56(5), 12. Retrieved from http://www.schoollibraryjournal.com/article/CA6727279.html.

[2]. Barnes, J. & Herring, D. (2011). Learning their way: mobile devices in education. In M. Koehler & P. Mishra (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference,* 2011 (pp. 127-129). Chesapeake, VA: AACE.

[3]. Baum, M. &Walter, E. A. (2011). *Will the iPad revolutionize education? Learning & Leading with Technology,* (Vol. 38). (7), 6. Retrieved August 28, 2011, from Academic OneFile via Gale: http://go.galegroup.com/ps/i.do?&id=GALE%7CA256171706&v=2.1&u=duke_perkins&it=r&p=AONE&sw=w

[4]. Briggs, L. (2006). A mobile cause: incorporating handhelds into the classroom means first having to address a few key challenges. *The Journal (Technological Horizons in Education),* 33(8), 20.

[5]. Christmann, E., Lucking, B., & wighting, M. (2010). Hang up and learn: Cell phones in the science classroom. *Science Scope*, 33(9), 82.

[6]. Gupta, B., & Koo, Y. (2010). Applications of mobile learning in higher education: An Empirical Study. *International Journal of Information and Communication Technology Education,* 6(3), 75.

[7]. Hlodan, O. (2010). Mobile learning anytime, anywhere. *BioScience,* 60(9), 682.

[8]. Kennedy, M. (2011). Learning tools. *American School & University,* 83(10), 16.

[9]. Project Tomorrow. (2010). Project K-Nect evaluation report: *Students leverage the power of mobile devices through the project K-Nect mobile learning initiative in Onslow County.* Retrieved October 11, 2011, from http://www.tomorrow.org/docs/Project_K-Nect_EvaluationReport_Final_Jul7.pdf

[10]. Schaffhauser, D. (2011). The ABCs of BYOL: how a bring-your-own-laptop program may eventually put a device into the hands of every student in an Ohio school district- and technology into every one of its classrooms. *The Journal (Technological Horizons in Education),* 38(5), 22.

[11]. Waters, J.K. (2010). Enter the iPod (or not?): Apple's new table computer has earned raves for its design, portability, and dynamic apps, but is it any better than netbooks and laptops now fueling school computing programs? Depends who you ask. *The Journal (Techological Horizons in Education),* 37(6), 38.

[12]. Wieder, B. (2011). iPads for college classrooms? Not so fast, some professors say, Rival tablet PC's foster more interactivity, studies suggest. But students' craving for the Apple devices could matter more. *The Chronicle of Higher Education,* 57(28).

ABOUT THE AUTHORS

Ms. Sachs is a social students employed by a charter school is Durham, North Carolina. She graduated in December, 2011 with her M.A (Hons) degree in Instructional Technology.

Dr. Prince Hycy Bull is an Associate Professor and Program Coordinator of Educational Technology at North Carolina Central University School of Education. His research activities include, but not limited to technology integration with preservice and in-service teachers, learning technologies, emerging technologies, and technology integration with K-20 faculty and staff. He is a graduate of the University of Sierra Leone, Fourah Bay College, North Carolina Central University and North Carolina State University. He has extensive knowledge in integrating technology in education. His credentials are North Carolina teaching licenses for Intellectual Disabled (Mild and Severe), Mentor, Curriculum Specialist, Instructional Technologist, School Principal and Exceptional Children's Director.