

iPads in the Classroom – New Technologies, Old Issues: Are they worth the effort?

Doug Reid
Wayfinder Education Group
Canada
drdougreid@gmail.com

Nathaniel Ostashewski
Athabasca University
Canada
nostashewski@me.com

Abstract: This paper presents the results of a research project that involved introducing iPads into two elementary school classrooms to support the development of student digital storytelling skills. This was done because the school jurisdiction wanted to implement technology into grade six classrooms and provide useful support to the teachers and students. This project resulted in many positive learning experiences with the technology, with storytelling and across other components of the curriculum and the community. There are a number of implications of this research, including examining the constructionist theories underpinning the learning behind the creation of educational artifacts. In practice, there are many management issues regarding implementing new technology in classrooms as well as the pedagogical implications of giving students access to technology that can allow them to create their own understandings in classrooms.

Introduction

The impact of handheld mobile devices on educational practice continues to be an area of considerable interest in both the research and practice of education (Ally, 2009, Kenny, Park, Van Neste-Kenny, Burton & Meiers, 2009). However, there is a paucity of research-based literature regarding the applications of these types of touch screen handheld devices in K-12 classrooms. Some research presents the need to focus on making use of the inherent features of handheld devices in educational contexts (Song, 2007). This paper presents the implications for practice of an in-class innovation project that saw iPads introduced to elementary school classrooms with constructionist pedagogy.

iPads are a new type of technology tool that allows for many kinds of interactions with a connected communication device (McCombs & Liu, 2011; Ostashewski, Reid & Ostashewski, 2011). Interactions on an iPad are more visually presented than on smaller smart phones, such as an iPhone. Navigation on an iPad includes taps, swipes, and pinch-zooms not possible on a regular laptop or desktop computer. New possibilities for mobile education are readily evident when these new technology affordances are coupled with a light robust textbook-size screen and thousands of specifically designed apps (Watlington, 2011).

Context

This project came about because a school jurisdiction endeavoured to implement iPad devices into upper elementary school classrooms for one semester to examine the impact these devices had on the

teaching and learning dynamic of the schools. This school jurisdiction identified upper elementary school students as beginning to be at risk for withdrawing or disengaging from their educational journey. Two key factors were involved with the visualization of the project, including the levels of engagement by the students and a demonstration of project learning.

This project of innovation was based in two different schools within the same school jurisdiction. The schools had a geographically similar location and had access to all the same administrative processes and funding possibilities. Each school had one grade six class chosen to participate in this initiative. However, there was a great deal of difference in the communities where the schools were situated. One school was located in a small urban community of several thousand people. The other school was in a small rural aboriginal community of much fewer than a thousand people.

The capabilities of the iPad make it a unique educational device. An audio recording tool, GPS capabilities, and integrated speaker system make the device usable as both an information gathering and small group display device (Ostashewski, Reid, & Ostashewski, 2011). The multimedia capabilities together with the iTunes multimedia database make this device a customizable media library. Ostashewski, Reid, & Ostashewski (2011) have identified three classroom strategies for the use of the multimedia library for student access in the classroom that take advantage of the iPad's mobile library. These different teaching and learning strategies are: mobile small group demonstrations, large group demonstrations, and student-controlled playback-and-practice activities. These strategies make use of the large screen size, customizable iTunes playlists, and internal speakers for access to the mobile multimedia library.

One iPad educational implementation project that involved students and professors (Gawelek, Spataro & Komarny, 2011) suggests that iPads are impacting specific educational practices. They indicate that early assessments of the institution-wide use of iPads in a college points to faculty using the devices for three main categories of activities. These activities are: immediate & authentic information gathering, instruction & reinforcement, and Instructional & student presentations. Further findings also identify that iPads are being used by students for real time backchannel discussions during class time, as clicker response devices, and for using and searching e-textbooks. There are also reports that faculty and students both use the iPad devices for convenience, portability, communication, information gathering, note taking, reading, and interactive work (Gawelek, Spataro & Komarny, 2011).

Methodology

As with any educational innovation, its success is largely dependent on its implementation into the environment (Clarke, Butler, Schmidt-Hansen, & Somerville, 2004; Levy, 2003; Volery, 2001). The school jurisdiction opened the project up to applications from teachers and schools that wanted to take part in this initiative. Interested teachers were required to describe in detail how they planned to use the iPads to further student learning and demonstrate the infrastructure of support in place in the school. Once the two classes were chosen, it was confirmed with the schools and selected teachers that digital storytelling and a constructionist ideology were to be the initial focus of the implementation.

The second phase of the project involved the research team providing support for the new iPad implementation in the classrooms. Initially the research team was tasked with identifying appropriate iPad apps that could be used in the classroom for digital storytelling. Subsequently, the schools, in preparation for a face-to-face in class professional development session, prepared the iPads by preloading the required apps. The initial intervention with the research team consisted of several hours of introducing teachers and students to how the iPads worked and to the basic structure of digital storytelling. Through the introduction process, teachers and students were given the opportunity to explore and engage with the iPads to ready themselves for the learning activities that were to come.

The focus of the in-class professional development session was on guiding teachers and their students through the use of the iPad apps for digital storytelling. After teachers and students became somewhat familiar with the basic workings of the iPads, they were guided through the use of two different digital storytelling apps. These apps, Storyrobe and Storykit, both provided a framework to create stories

that used the touch screen technology of the iPad along with the multimedia functionality to create lively engaging stories. Each app was selected for the project for a number of reasons including its ease of use, its ability to save and share stories, and the use of sound, graphics, video and interactivity in the stories to be created.

Following the introduction of the iPad and the digital storytelling apps, the classes started to diverge in the manner the technology was used. Descriptions of this divergence occurred is outlined in the next section of this paper. The urban class observations will be presented first, followed by the rural class.

Urban class

The urban classroom had specific time each week allocated to digital storytelling and using the iPads. A great deal of time was spent dealing with the management of the technology and setting up structures to support the activities. Some activities the teacher engaged with to support proper technology usage included having students in set partnerships, finding apps that were relevant to the curriculum and encouraging discussion about the iPad usage in the students' learning.

The teacher in the urban class was comfortable setting up non-traditional processes for students to further discuss what they were learning. He set up a microblogging (todaymeet.com) account that existed for the length of the project. This microblog allowed students to "back channel" discussions around what they were learning, when they were learning it. The teacher projected the microblogging onto the classroom whiteboard during classroom sessions. The teacher reported that this reduced the number of questions asked of the teacher during lessons and allowed students to answer many questions from their peers.

This type of interaction-based classroom also demonstrated the need for time to let the students explore the tangents they discover. These tangents were able to engage them and keep the students' attention and it honed more refining of student research skills. Earlier in the year, the teacher had instituted a "three then me" questioning policy that forced students to attempt to find answers to questions from three other sources before asking the teacher. Apparently, the students were initially just asking the teacher and not making more than a negligible effort to find out anything by themselves. With the introduction of the iPads and their access to other information sources via the web, students greatly reduced the number of questions being asked of the teacher as they began to be able to find answers elsewhere.

The class also had a special needs student who was basically non-verbal. The teacher found the functionality of some apps provided the child with learning experiences beyond what was previously available in the class. Apps like Speak It! allowed her to present information and ask questions in class. The teacher was very insistent in noting for the researchers that the iPad and its apps were more useful to this special needs child's education than the thousands of dollars of specialized equipment already provided to the student. The iPad and the inexpensive apps were thousands of dollars less expensive, and more readily customizable for this student.

Rural class

The rural classroom initially struggled with the implementation of the iPads. The teacher admitted that she was an immigrant to computer use, while her students were much more comfortable with it. The class started with a "fractured fairy tale" activity involving taking traditional fairy tales and changing components of them such as characters, plot, setting and point of view. The teacher stated that she was content with this activity but really became comfortable with the concepts of digital storytelling when she obtained a book that explained the production process in great detail.

After the class was comfortable with the process to follow with creation and sharing with the iPads, everything got easier according to the teacher. Digital storytelling became a bigger event in the class and there was a literacy day organized involving parents and community members. At literacy day, the students shared digital stories and info graphics created in class. The use of the technology then started to creep into other parts of student life such as becoming a graphic organizer, and being used in math to have students' present fractions in a graphics app such as Doodle Buddy.

A key component of the iPad usage and how it evolved was due to the teachers' level of comfort with the technology, the pedagogy and her understanding of her role as a teacher. The teacher described it by saying "I don't have to be the guru of technology, my students will be. And they have proved it over and over again." Once this epiphany occurred for this teacher, the technology became more ubiquitous in the students' learning.

Interestingly, both the rural and urban classes had similar experiences regarding the ease and speed of internet access. The iPads were seen to be more convenient, easier and faster than the available laptops when students were attempting to use the internet. This appears to be a result of the more mobile nature of the iPad. Other current research by Pamplin (2011) points to the mobile access of the iPad, as a larger screen device, as being a significant feature of the device for classroom use by teachers. Pamplin (2011) reported that teachers identified iPads as a significant tool with convenient access to the internet. Possibly this new form of "large screen mobile internet access" is an affordance of the iPad or other tablet devices that is unique among mobile devices.

Implications for practice

This initiative has been shown to be a practical cross-curricular learning process that can be tailored for a variety of student and teacher skill levels and across subject areas. By focusing on digital story creation in a specific subject, the students appeared to get to use more imagination, personality and practical knowledge than in many traditional educational assessment activities. Once the students became comfortable with the use of the iPads, they found many cross-curricular uses for them, including art activities and science fair projects. Some students went so far as to program their own app that would walk people through the life of a student in the school.

Further, there were many more typical implications for practice (Reid, Kervin, Vardy, & Hindle, 2006) that were discovered through the project. The management of the new technology devices required a time commitment from the teachers, including keeping the iPads charged, keeping track of which students were using which iPads, and as one teacher put it, "attempting to MacGyver solutions" regarding having the same apps on all the iPads. One teacher went so far to get the shop teacher to build a charging rack to keep the iPads organized and charged when they were not in use.

One main finding of the research was the way student behaviour changed with new levels of access to information. Both teachers commented on the independence the iPad gave students. According to one teacher, "iPads completely changed the level of independence of the students." The iPads allowed students to search for information on the internet with fewer restrictions than they would normally have in a classroom situation. This led to learning situations for some students regarding what websites were appropriate for their use. It also led to a dramatic decline the number of questions asked of the teachers because students had another place to find the answers. Students no longer had to wait for the teacher to answer their questions and that freed everyone up to explore and create more than was usual in these classes.

The teachers appreciated the face-to-face session provided to the teachers and students at the beginning of the project. They did not use the online support system that was created in the social networking site a great deal. They ended up emailing the researchers directly for support, but this may have been a result of only having two teachers in the project and having them take different approaches to

accomplishing their teaching and learning activities. They also suggested that more direction about the creation of digital stories would have been helpful in the beginning.

Conclusion

This paper provides an example of how a new technology device can be used in a novel authentic manner in upper elementary classrooms. The focus on the language and literacy aspect of this innovation rather than on the technical aspect of the innovation was seen to be the key to the authentic learning that took place. The teachers and students involved with the innovation indicated that having these devices in their classrooms positively affected their learning as they constructed learning artifacts. The school jurisdiction has also seen the impact of these tools for learning with a new commitment to leave the iPads in the schools for a total of two years rather than the original one semester that was planned. However, more research into cross-curricular transparent uses of technology in education continues to be needed at the K-12 level. As well, additional research on the needed teacher supports for implementation into other classrooms that do not have direct face-to-face PD access is needed.

To conclude, the implementation of iPads in the classroom is worth the effort as these new large screen mobile devices are leading to innovative new ways for teachers and students to interact with each other and to access information. Devices that can support additional student inquiry and development of online research skills as well as put new digital construction tools in the hands of students, appear to be able to develop new 21st century skills in learners. The iPad may in fact be the right combination of mobile tool and connected device for the classroom to meet this kind of need. With the release of the iPad2 device in early 2011, which includes camera and video capture features, this device continues to develop as an educational tool of some note.

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