What we discovered after 11 months of iPad in a grade 6 classroom…

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2012 iPad Program Rationale
Student engagement with technology for learning forms a vital part of a relevant and high quality education in the 21st Century. Access to digital information, tools, and resources is vital in a contemporary society where the flow of information is available from a huge diversity of resources at any point in time. Nathalia Primary School strives for self motivated, personalised, ubiquitous learning for life through the use of iPad’s within the year 6 classroom.

Program Outline
Nathalia Primary School embarked on a 1:1 iPad initiative in term 4, 2011. The program followed a Bring Your Own Device (BYOD) model, asking parents to provide an iPad for their child for the start of term 1, 2012. The purpose of the initiative was to improve student engagement in learning through use of current technologies and develop important skills required of 21st Century learners. Two information sessions were held to inform parents of the initiative and provide information regarding the intended use of iPad’s within the classroom and respond to questions.

The program was targeted at the grade 6 student group, who would be within a single classroom in 2012. Of the 28 students within the class, approximately 20 students arrived on day one of term 1 with an iPad. This number improved steadily, with an average of one new student/iPad every two weeks until the final number of students with parent-owned devices reached a peak of 24 students out of a total 28.

Positive Outcomes

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One | BYOD Model

The deployment strategy of Bring Your Own Device (BYOD) has enabled students to develop personal responsibility and thus far has been highly positive. Students have shown great care and respect for their own devices, as well as others.

The majority of students within the grade 6 cohort had access to a personal iPad throughout the year, with 23/28 students owning a personal device.

The ability for students to take their own devices home with them has seen unique and creative outcomes, such as students volunteering to do learning tasks at home and share with the class, and increased communication between school and home – including some students not missing out on school work during a local flood event and illness. Students have become exceptionally adept at using the devices in various areas of their lives outside of school, and this has empowered them to forge links between home and school and value learning as ongoing and anywhere.

As the students own their own device, the option for them to now continue to use the same personally owned device as they move through their education into secondary schools is a huge benefit for their learning. Students transitioning to the Nathalia Secondary College will be encouraged to further the use of their devices for deeper levels of learning before transitioning into the laptop program. If their future high school does not run an iPad program, their devices will still continue to provide ubiquitous access to information and content creation and management applications. As Doug Belshaw states, “There’s no doubt that Apple (iOS), Google (Android), and Microsoft (Windows Phone) are creating ‘verticals’ across which it’s becoming increasingly difficult to navigate. It’s much easier to deploy, for example, a single type of device across an institution rather than take a ‘mixed economy’ approach. But to do so, in my opinion, would be to repeat the mistakes we made around Microsoft Office in the last 15 years or so. Locking yourself into one vendor may lead to a short-term gain but I can almost guarantee it will be a long-term loss” (2011). Personal ownership of the iPad enables this platform to move throughout their educational lives and complement any future ICT infrastructure they are learning in.

“Personal ‘ownership’ of the device is seen as the single most important factor for successful use of this technology: This is seen as the critical element in increasing student levels of motivation, interest and engagement; in promoting greater student autonomy and self-efficacy; in encouraging students to take more responsibility for their own learning. Evidence suggests that greater personal ownership of the iPad may also contribute to more interdisciplinary activity (Faculty of Education, The University of Hull, iPad Scotland Evaluation Pg 9, 2012).

“You get to use them when you need to” – Student Response

“I use my iPad for a lot of things in and out of school” – Student Response

iPad Access 2012

- Have an iPad: 82%
- Without an iPad: 18%
Two | Mobile Format

The mobile format of the device has enabled it to be used outside of the classroom, and it is never an inconvenience or hassle to transport and use. The instant-on functionality has greatly enhanced the ability to access information and begin tasks without interruption, and has eliminated the waisted wait-time from PC and Netbook devices. Using the iPad has made using technology in the classroom seamless and natural.

Some students display a deep level of engagement when using the device to support their learning. This is usually self-directed by the students, who have developed their own work-flows to improve their efficiency. An example would be when researching for a writing task, some students can easily place the device alongside their writing book and transition seamlessly between web browsing, handwriting, image cataloguing and map searching without appearing to disrupt their workflow between using a mouse, typing and adjusting their seating position and screen, as the device can rest inconspicuously inside their work book as naturally as another page in it.

Additionally, the ‘Instant On’ ability of the device enables learning to be uninterrupted and natural. Learning time is not wasted in waited 3-4 minutes for computers to ‘boot up’ and then the stability of the iOS platform ensures that freezing or program crashes rarely – if ever – occur, and if they do, can be resolved within seconds. This is an invaluable benefit of the iPad, as it truly becomes a natural and unobtrusive additional learning tool.

Did you use your iPad outside?

(Students)

"It’s a lot easier than using a computer because you don’t have to wait for a long time" – Student Comment

"Because we have them right there, if you need to look up information instead of walking over to the library to use a computer" – Student Comment

"We didn’t have to take turns with the computers" – Student Comment

This is supported by findings from the 2012 Victorian Department of Early Childhood and Learning iPad trial evaluation, which found:

"Portability enhances collaboration between students and communication between students and teachers, increases parental engagement in learning and strengthens home-school connections." (Pg. 1, 2012)
Three | Apps

Apps which allow for practise of Rote learning skills such as times tables and spelling lists were used throughout the year. These apps were generally very narrow and were not used regularly due to this. They were effective, however, in engaging students in these tasks. Times Tables challenges and WordWarp in particular proved to be very engaging for students who have difficulty with multiplication tables and basic spelling. The touch screen and interactivity provided a level of engagement which is often absent when undertaking tasks with a similar learning intention using pen and paper.

The pilot found that the design features of the iPad afforded learners quick access to the Apps they required for particular learning tasks. This ease of use appealed to a wide variety of users due to features which cater for different learning styles – visual (vibrantly coloured pictures, signs and symbols), tactile (using their hands and fingers to manipulate the object) and auditory (music, speech, read aloud).

- Catholic Education Diocese of Parramatta: iPad’s in Schools: Use Testing, 2012

The apps which encouraged and facilitated creativity and collaboration, however, such as iMovie and GarageBand have proven to be very powerful in their ability to engage and inspire creativity in media and music creation. Students are now empowered to create their own digital work freely, which is often very creative and insightful. It is these apps which students have indicated assisted them the most throughout the year with their learning (see below).

The range of collaborative, content sharing apps which facilitate deep and critical levels of thinking are growing as the global demand for such apps increases. This year, some examples of these apps implemented include Socrative Student Clicker, ShowMe and Popplet. Each of these apps is designed around developing and sharing understandings with others, and function simply and seamlessly. Through the use of these apps in particular, the technology has moved out of way of learning and provided immediate access to the applications students need regardless of curricula area.

Student response to which Apps helped them most this year?

![Graph showing student response to which Apps helped them most this year.]

- Pages: 25
- Keynote: 11
- GarageBand: 5
- iMovie: 14
- Photos: 7
- iBooks: 10
- Dropbox: 15
- Email: 11
- Calculator: 1
- Drawing Apps: 1

Which Apps helped you most this year?
Four | Cloud Based Computing

The lack of external USB support or networking with the school server has been a significant positive. Initially, the transition to a cloud-based way of managing content was a challenge due to familiarity with locally managed content through school servers, USB devices, and CD Media.

This challenge has forced students and teachers to learn to function in an environment which is increasingly online, and ‘ownership’ of content is increasingly being redefined. Students are using Dropbox and iCloud cloud-based solutions to store, access, and share work which is in line with current ICT trends and expected future developments.

Students are now familiar with uploading and syncing with Dropbox, and accessing materials from within the app. As an unforeseen benefit, the classroom has greatly reduced its dependency on photocopying, and estimates from the classroom teacher would indicate it has perhaps been halved this year. This has come about due to the simple distribution of written documents through cloud solutions, which each student has been able to access on their personal device.

“Instead of Mr J having to send things individually he can just send it to everyone through Dropbox” – Student Comment

“It’s better than printing heaps of paper” – Student Comment

“You don’t have to have so much paper on your desk” – Student Comment

The technologies we use are increasingly cloud-based, and our notions of IT support are decentralized. This trend, too, was noted in 2010 and continues to influence decisions about emerging technology adoption at educational institutions. As we turn to mobile applications for immediate access to many resources and tasks that once were performed on desktop computers, it makes sense to move data and services into the cloud.

-New Media Consortium, Horizon Report 2011

iBooks has enabled open-sourced books to be shared and viewed by each student individually on their iPad during shared and guided reading lessons. This has greatly improved these learning tasks, as each child can have the books in front of them at no cost to them or the school. They can follow along and participate in the reading of the books, find definitions, save bookmarks, highlight their own book and read at their own pace. The ease of access may have also encouraged some students to increase their reading frequency outside of school hours, although this is difficult to quantify.

The price point of some books remains a barrier for some students, however, the range of free and open-source books is growing. Students have frequently used the dictionary function to voluntarily seek a word definition while reading rather than skipping the word, have resized the text to suit their preferred font size for reading. This initially caused some disruption when referencing pages or statement during guided reading sessions, however, once familiarity with the device, students were able to manage their device to match those of the reading group.

It is also important to note, that while the range of free books available on the iBook store is growing, it is still fairly limited. Hard-copy texts were still used for the majority of lessons, and the difference in reading outcomes was negligible. Early research has shown the reading outcomes to be very similar between hard copy texts and electronic texts. However, the main benefit of the bookstore lies within its easy access to texts and management of them rather than the reading outcomes. *

Six | Audio & Visual Recording

Students with iPad 2 devices have been able to capture and record much of their learning throughout the year. This has seen very positive outcomes in regard to reflective learning and parental communication. The abundance of student media has provided plenty of content to share with parents within the classroom blog, as well as videos, images and documents that students have been able to take home and share with family. Furthermore, this capability has encourage introverted students to share their learning, and for all students to develop their presentation skills.

The presence of audio/visual equipment has clearly increased the opportunities for students to engage in meta-cognitive, reflective practise as they begin to think about their learning in a deeper way.

Students have recorded personal reading sessions which have been shared for ongoing assessment with their classroom teacher, as well as individual and group video discussions around various learning tasks. The abundance of this media cannot be underestimated in it ability to promote reflection and deeper level of thinking within the classroom.

“It’s good because you get to see what you have done earlier in the year, and you can also see what other people have done” – Student Comment

<table>
<thead>
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<th>Best thing about having camera's at school?</th>
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<td>Sharing pictures</td>
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<td>Making videos for projects</td>
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<td>Photo's for projects</td>
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<tr>
<td>Taking pictures at home and showing them at school</td>
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Eight | Communication

Through the use of email, communication between teacher and student has been enhanced greatly. Initially, students were a little unsure how to integrate email into their schooling as it had not previously been available. However, as students began sending their work for review to the teacher, they began to realise the potential for communication.

Some students commented throughout the year their parents had encouraged them to email the teacher to receive additional work when they were home sick or away on holidays. Some students would write questions for clarification around homework tasks or even other activities that had occurred throughout the day. Student email was managed by the classroom teacher, with each student account being provided, managed and monitored by the classroom teacher and school principal.

Two incidents of Cyber Bullying occurred over the course of the year. One of these incidents involved students without an iPad, but occurred through the Skype platform which is freely available on computers, phones and tablets. Incidents of Cyber bullying are on the rise throughout the world and it is obvious through regular reporting in news media. This is not isolated to Nathalia Primary School. The occurrence of this provided an important teaching and learning opportunity for students, since they then had relevance for the messages being conveyed to them about cyber safety and appropriate use. The option for email also provided those who may otherwise have not raised these issues with the classroom teacher having an outlet to comment and inform the teacher of the situation in a non-judgmental and private way. The occurrence of bullying through digital media calls for more targeted curriculum at the issue of bullying, and be seen as a behaviour issue foremost.

With appropriate use and education, student communication was greatly enhanced and forged links between home and school, demonstrating clearly that students can and want to learn anywhere, anytime.

“Yes I think so, when I’m home I use Skype and I think email is a big help with work that needs to be sent and homework” – Student Comment

“Yes I could talk to my friends and family at any time” – Student Comment

Parents who indicated their child had used the device to keep in touch with friends or family:
Seven | Engagement in Learning

Student engagement in learning by those who have difficulty engaging in educational tasks has shown the greatest level of benefit from the iPad. Where previously they may have approached writing tasks or reading tasks with negativity they are now far more positive and look forward to the opportunity to use their iPad to perform these activities.

One of the primary goals of any 1:1 iPad deployment is to personalise the learning for the individual student. Throughout the year, talents and passions held by the students became outwardly expressed through the use of the iPad. Some students began proudly showing the photography they had become fascinated by, some the Keynote presentations they had created on subjects and topics outside the set curriculum. Students became excited when they did not understand the meaning of a word and were able to autonomously discover for themselves what that word meant nearly instantaneously. Games and other apps provided a link between a student’s hobbies and school, enabling the teacher to reach and communicate with those students on a far deeper level. An example of this would be the game ‘Minecraft’, which became an instant classroom hit which enabled the teacher to develop deeper connections with students through conversation and discussion around the game, as well as inspire creativity and deep levels of thinking.

Students who were previously quiet and reserved found an outlet through the iPad to express their ideas. Whether this was through the app Socractive, during quizzes, or through emailing the teacher questions they may have been apprehensive to ask in of the class, to more significant leaps of change

"Looking across the various sources of data available from this study there is little doubt that the ownership of a personal device, such as the iPad, significantly increases levels of motivation and interest shown by students in their work at school leading to greater engagement and autonomy by students." DEECD iPad Trial Report

*Student* can be quite reluctant as a learner and technology has really enabled him to engage with content that has motivated him and has improved his overall literacy. He is far more self-directed in his capacity to manage tasks and work through problems.* - Parent Comment

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<th>Key Reasons Students Found the iPad Engaging</th>
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<td>Apps were ‘fun’</td>
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<td>Writing</td>
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<tr>
<td>Touch Screen</td>
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“It helped me want to write some homework tasks, do maths and research stuff. The iPad was really helpful” – Student Comment
Areas of Consideration

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Deployment strategy (BYOD) has prompted some objection from parents, as well as presenting some issues in regard to student learning. The parent-supplied model, whilst holding numerous benefits, has been questioned regarding equity in education.

Some students remain without an iPad at this stage of the year. This has created numerous challenges in teaching and learning, such as finding suitable alternatives which can achieve the same functionality as the iPad. As competency and depth of use increases, these students may experience feelings of isolation and loss of valuable skills that their peers will be experiencing using their iPad. Despite many of the tasks performed by the iPad being substituted with an alternative, such as word processing, others are not, such as accessing multiplication games and capturing, editing and publishing a short film in a matter of minutes. Students who remain without an iPad are missing out on these opportunities, and increasing demand on teaching staff to support them in alternate ways.

Furthermore, issues around social isolation may be exacerbated in those without an iPad. It is true that access to other ICT resources has been freed up to the point where they now have near immediate access to those. So those without an iPad have actually had far increased access to school resources than previously available. Furthermore, the issue of social isolation can be related to boys who are not involved in local football during the football season feeling isolated during school, or girls with horses discussing their horses with those who do not have horses.

With the lack of school funding to continue to offer a rebate on school fees for the 2013 school year, further avenues must be explored to work to ensure the minimization of these issues from the iPad program.

Parent feelings concerning the trial*

“I think it was a costly expense when others schools purchase or lease out the computers, this way the child is not left with an iPad which their High School may not use” – Parent Comment

“I would like to see a bank of at least 5 iPad’s for student use at school, ideally a class set like the preps have of netbooks. – Parent Comment
Two | Missing Apps

Due to the parent-owned nature of the devices, parents are responsible for downloading and installing required apps. This has presented challenges when students with iPad’s do not have the required apps installed for a learning task. Many students were without a basic word processing app for much of the first term, meaning the functionality of their iPad was greatly limited. As the year has progressed, all students now have the ability to install their own apps, which has made the management of applications far easier, whilst also presenting additional issues around downloading apps in the background.

It is recommended that parents be made aware of this issue, from which they can continue to monitor their children at home. Additionally, clearer and transparent inclusion in the Student Acceptable Use Policy must be made transparent to all students.

An initial apps list was provided at the end of 2011 which listed all required apps (both paid and free). Throughout the year, other applications were required; however, the paid apps remained limited to only those listed on the initial app list. Approximate costing for the total apps for the year would be less than $40. This may or may not change if the program is continued.

Three | Distraction

The presence of a mobile device within the room presented an additional level of distraction which both the teacher and students were unfamiliar with. In semester one, the devices were stored in a filing cabinet within the room which students could access anytime. This resulted in some students accessing the devices at inappropriate times and provided a challenge to the classroom teacher and device management. Students require frequent reminding of the need to remain focussed on the task at hand and not be using inappropriate apps during school although this can be difficult to the large class size and ability to very quickly transition from one task to another on the device.

Improvement in student Acceptable Use Policy and clearer communication of this would work to increase appropriate use of the device within school. Furthermore, higher teacher expectations are needed to follow this through and promote change. Other schools have also found this to be an issue which is managed by clear expectations and guidelines for use. It is also important to state that distraction using an iPad cannot be considered an iPad exclusive issue. Distraction can occur anywhere and in any activity, and is representative of a behavioural issue not a technology issue.

Reason for Distraction

![Chart showing reason for distraction: Skype, Games, Not Distracted]
The classroom teacher adapted and learnt to manage student content on and off student devices, and share content between one another. However, this process has been challenging, even for an ICT leader. Concerns may arise in a second year as further staff are introduced to the program and begin to use the devices. This change in technological workflow may be challenging for staff familiar with traditional methods of content management such as using PC computers. iPad’s handle files and content differently. This area is improving frequently, as more apps are being published or updated with added support for various cloud based solutions which has worked effectively this year, and this is predicted to continue to improve.

This area for consideration speaks to the changing nature of file management and access, which is changing rapidly in the digital economy. It speaks mainly to the change in pedagogy experienced by staff members and the possibility of those changes effecting future staff.

**Five | Rate of Technological Change**

The rate of technology and change within the industry is such that future-proofing for Apple devices cannot be guaranteed. In term 4 2012, the iPad 1 officially lost software support from Apple. This means any future updates to iOS operating system and Apps will not work with the iPad 1. The device will continue to function and perform all the tasks it always could, but new features or functions may not be compatible. This is two years after the iPad 1 launch, which indicates Apple is intending a 2-3 year life cycle for iPad support at most.

Whilst this may not directly affect teaching and learning within a classroom environment, because the expectation would be that each year the students would have the most recent or 2nd generation device, it may present challenges in promoting the device to parents as a long-term investment in their child’s learning. However, such an issue is endemic of technology in general and is not limited to iPad devices. Furthermore, the resale and repurposing of Apple iPad devices remains exceptionally high, and could be resold at a very respectable return price if desired.

**Six | Device Damage and Breakage**

The iPad unit is exceptionally resilient to physical breakage, and is immune to virus and software malfunctions, meaning issues concerning apps not working or being slow/unusable is not an issue. Viruses and bugs are also nonexistent on iPad devices due to the rigorous application and testing process the apps undergo to be listed on the app store.

Two students of the 23 with iPad’s have experience physical unit breakage through dropping their iPad. Interestingly, the two damaged iPad’s were also the only two which are kept and transported without an appropriate iPad cover/case for protection. Those with an appropriate full-body cover remained undamaged and made it through a full year of use and transportation without incident, and remain in full working condition both in terms of hardware and software. There were zero breakages at school.

**Total Device Damage**

- Damaged: 8%
- Undamaged: 92%
2012 Evaluation

In consideration of all findings from the first year of the iPad trial at Nathalia Primary School, the potential for innovative and engaging opportunities and empowerment of learning remains very exciting for both educators and students. Overwhelmingly students have responded positively to the first year using the device, although areas for consideration were very clear.

The first clear area to consider is to review the BYOD model, and consider what can be done to ensure all students have access, or are provided additional support to procure their own device to ensure equality in access and learning opportunities.

Issues concerning distraction can be targeted and resolved through clearer and more precise policy, which has been made transparent to teachers, parents and students. As well as lifting teacher expectations and engaging lesson content.

Parents have clearly expressed the desire for increased information and support in managing the devices at home. This can be achieved through further information sessions with a focus on responding to parent needs, as well as a letter home once or twice per term to inform families of ideas or strategies, as well as report on their use at school.

This year has seen many benefits related to students learning, not limited to increased student engagement in learning tasks, positive attitude toward reading and problem solving while reading (finding definitions, spelling, comprehension of larger texts), ubiquitous and natural access to information and learning resources, reflective learning and critical thinking and promoting links between school and home, with students viewing learning as an anywhere, anytime skill.
References:


