Innovation in Teaching and Learning – the next steps for Carey Baptist Grammar School

1:1 iPad Program Prep – Year 4: 2013

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"Under the right conditions the iPad can significantly enhance teaching and learning outcomes within and beyond the classroom"
Department of Education and Early Childhood Development
iPads for Learning – Evaluation Report 2011

Teaching and Learning today:

We call today's learners Millennials, Generation Next, or the Net Generation for good reason. They are in constant communication with each other, and use media, and digital technologies almost instinctively. They are connected, wired for the next moment's activities, and view the world through the prism of their own interests. This worldview is different from that of previous generations and the difference affects their learning significantly. Within the context of their interconnected, always-on world, the path to student engagement and learning has changed.

The potential of wireless and mobile technology to enhance teaching and learning is so great that it is currently at the forefront of technological advancements in education. Mobile learning is here and it is impacting how students learn and how educators teach. These wireless devices which are small, portable and WiFi enabled do not confine students to one classroom. Learning with mobile technologies is about learning whenever, whatever and wherever! These devices when used effectively in teaching and learning have enormous potential. According to Steve Wheeler, mobile technologies "link traditional, formal learning styles with the informal learning styles that appeal to todays learners"[1]. They promote and encourage personalized learning and differentiate learners. Mobile technologies provide opportunities for students to collaborate and make connections to the real world. All of these 21st Century 'needs' are guiding and reshaping our teaching and learning.[2]

The Importance of Technology in the Classroom:

In order to thrive in an increasingly digital world, students need to be able to work proficiently with digital technologies. Therefore it is vital that the educational system continues to change and evolve in order to prepare students for the world beyond the classroom.

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[1] http://net.educause.edu/ir/library/pdf/pub7101.pdf 2012
[2] Trilling and Fadel. *21st Century Skills; Learning for Life in our Times*, United States of America. 2012

When students are using technology as an effective tool or a support for communicating with others, they play an active role in the learning process rather than a passive role of recipient of information transmitted by the teacher or textbook. The student actively makes choices about how to generate, obtain, manipulate or display information.

The Horizon Report[3] identifies five key drivers of technology:

- Technology is increasingly a means for empowering students, a method for communication and socializing, and a ubiquitous, transparent part of their lives.
- Technology continues to profoundly affect the way we work, collaborate, communicate, and succeed.
- The perceived value of innovation and creativity is increasing.
- There is increasing interest in alternative, and informal avenues of education, such as blended learning, mentoring, and independent study.
- The way we think of learning environments is changing.

As technology revolutionizes the way that we, interact with each other and the world around us, it is being openly acknowledged that students who are to be prepared for life in the 'real world' need to have a strong foundation in the use of technology as a tool. Carey's quest to develop wise, independent and motivated learners is made possible with the embedded use of technology.

The point of using an iPad in the classroom is not simply to use the digital device, but to provide a tool to aid learning, as this will empower learners to engage in the transformation of learning experiences. We as educators need to teach our children to be creative problem solvers; we want them to be leaders who can analyze a variety of sources for bias while synthesizing information to create a thorough understanding of a problem so that they can engage in dialogues to affect solutions. To do this we need to educate them and provide them with the right technology to achieve these outcomes.

Relevance for Teaching, Learning, and Creative Inquiry:

With significantly larger screens and richer gesture-based interfaces than their smartphone predecessors, iPads are ideal tools for sharing content, videos, images, and presentations because they are easy for anyone to use, visually compelling, and highly portable. They foster key 21st Century Skills in students; including creativity, innovation, communication and collaboration. When embedded into the background of daily lives, technologies like the iPad that can 'disappear'[4] enhance student engagement, inspire creativity and promote inquiry-based learning and differentiated instruction. These tactile tools, promote 'real' learning and their efficient nature

[3] *The NMC Horizon Report* 2011 K-12 Edition
[4] Mark Weiser, 1991

ensures valuable teaching time is not wasted waiting for the machine to start up and respond. The *auditory, kinesthetic and visual* aspects of the tablet appeal to a variety of different learners and learning styles. The iPad enables student-centred, personalized learning by giving learners the responsibility and ownership to choose how they learn, when they learn and where they learn; as well as developing their

organizational skills. There are many exciting possibilities for eBooks which are transportable, interactive, multilingual and resizable. The use of an iPad in the classroom also supports Bloom's Taxonomy's highest level; creating, and allows students to easily construct products that display their learning and understanding.

According to the Department of Education and Early Childhood and Development's iPad for Learning trial[5] students who use iPads take greater control of their learning; searching, practicing, creating, presenting and sharing. In fact the teachers involved in this trial report that there has been a dramatic improvement in learning outcomes, especially in literacy, numeracy, communication and thinking skills. The trial also concluded that iPads can; increase independent and self-initiated learning, increase student motivation and engagement, improve a teachers' capacity to meet learner's needs, extend learning beyond the classroom and improve parental engagement in learning.

In summary:

- The iPad empowers and inspires young learners
- As a one-to-one solution, iPads present an economical, flexible alternative to laptops and desktops due to their lower cost, greater portability, and access to Apps.
- iPads are conducive to engaging in learning outside the classroom, with a suite of tools for capturing data in real-time and collaborating on projects.
- iPads are easily adaptable to almost any learning environment, with tens of thousands of educational applications emerging as part of a new software distribution model.
- iPads help to increase in confidence in learning at their own pace on their own terms.

Case Studies: Carey Examples

We are currently in one of the most stimulating times in history with these amazing devices literally at our students' fingertips. As technology moves so rapidly we cannot sit around and wait for five to ten years of research to determine whether iPads provide an effective platform. We need to simply look at our own students to see how they are engaging with iPads and embracing these within their own learning environment.

[5] Department of Education and Early Childhood and Development's *iPad for Learning – In their Hands Trial Evaluation Report*, December 2011

Since 2010 Carey Baptist Grammar School has been immersed in an iPad Trial/Program. 2012 has seen our largest roll out with iPad usage deeply integrated into our Year 5 curriculum. 120 students have been actively participating and engaging in lessons with their 'learning companion'.

At the recent Parent/Teacher Interviews parents enthusiastically remarked about the professional, in-depth, highly polished, detailed work that students have completed using the iPad. One parent even commented that the students advertising presentation was better than any work that his staff could produce! In this instance, use of an iPad also helped students to communicate better with each other regarding arrangements for meetings and co-operate more productively when putting their Market advertisements together. Plus sophisticated presentation tools produced highly detailed, content rich pieces of work.

Another example of the iPad in action is during 'writing time'. A weaker student and his mother were justifiably very impressed by the improvement in the student's narrative writing. When his mother asked the teacher what he thought had caused the improvement the teacher replied, *"The iPad has freed him from the biro. He doesn't need to worry about grip, legibility or neatness. He can just let the ideas flow."*

Parents' views on the use of the iPad have changed dramatically since they were first introduced into Year 5 in late 2011. The following email correspondence sums up many of the parent's thoughts on iPads in the classroom.

> *As you know, I did think the iPad was totally inappropriate for year 5 kids.*
> *Simply, I was wrong. The educational value in many aspects has been fantastic for Thomas. This has been enhanced by the appropriate recreational value.*
>
> *Therefore, I appreciate Carey's leadership in the area of technology even more!!*

Other examples of improved student learning can be seen in the following examples given by teachers of Year 5:

> *Will has further developed his writing. He was on an Independent Learning Plan during Semester 1, however this has changed in Semester 2 due to a dramatic increase in ability and attitude! Will loves to see his work published and has taken great pride in using the Book Creator App to produce well written, detailed pieces of work.*
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> *Lauren's confidence levels have improved so much that she now thoroughly enjoys sharing her work with others. Animation Apps like iMovie and Augmented Reality programs have enabled her creative side to shine!*
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> *The attitude towards reading in general has improved greatly, especially for our boys. This is a result of the gesture manner of enlarging what they are reading. This assists with comprehension, defining words and gives boys the confidence to read aloud.*
>
> *Ethan has been engaged, better organised and completed more work as the year has progressed due to simple Apps like Priorities and iCal. Ethan works with learning difficulties caused by Asperger's Syndrome.*

Use of the ShowMe Interactive App has been a huge success in assisting all students to record their literacy and numeracy skills. Students can view the tutorials of their peers and use of this

Apps also provides opportunities for differentiation as high end students are given opportunities to teach others.

Case Studies: The wider community

While iPad programs around the world are still relatively new, a number of major studies are underway or have recently been completed that look to measure their outcomes. The Victorian Government iPads for Education site (www.ipadsforeducation.vic.edu.au) are compiling resources, first-hand accounts from educators and cases studies on the use of the iPad in the classroom. Overall, the outcomes have been very positive, including increased student engagement and a sense of leadership, and better teamwork and communication. The following schools have all been a part of a 1:1 iPad program and have reported positive educational gain from their experiences.

- Warringa Park School
- Manor Lakes P-12 Specialist College (PREP, 5 and 6)
- Ringwood North Primary School (PREP – 6)
- Albert Park Secondary College (7 and 8)
- Epsom Primary School (PREP – 6)
- Acacia College (5 and 8)

Aubin Grove Primary School in Western Australia recently trialed class sets of iPads and are looking to a 1:1 program across the school for 2014. Simple experiments using rote learning in languages and mathematics have proven very successful in the iPad space. Students who were given opportunities to use iPads for such tasks have dramatically improved in this space and teachers and parents have noticed a remarkable difference in student attitudes.

Similarly, students and teachers at Orana Catholic Primary School in Western Australia apprehensively integrated iPads into the Prep – 2 curriculum with the thought that iPads may lead to isolation. In fact the opposite occurred. Students now collaborate and communicate more effectively, their handwriting has increased and students are engaged and eager to learn. "*Mason still loves rugby, the netball team won of the weekend and we still have disputes over four-square. It's not a massive change, it's just the next step in education!*" David Barnes Orana Catholic Primary School 2012.

Mitcham Primary School[6] have been involved in a 1:1 iPad program from Prep to 2 since the beginning of 2012. They were originally part of the DEECD Program, but found the devices improved learning outcomes so they extended their use to other sections of the school. Students at Prep routinely use Apps to create and exhibit their work and their numeracy results have been deemed more advanced than like schools.

[6] http://www.mitcham.ps.vic.edu.au/ict

The future at Carey:

- **Devices in the hands of teachers:**

Teachers must be given the opportunity to become familiar with the device. The biggest advocates for mobile technology are those who are using them! Therefore, it is vital that Junior School Staff be given the opportunity to engage with an iPad as soon as possible!

74 Junior School Staff will require an iPad in 2013. If the proposal goes ahead these will need to be supplied ASAP.

-39 Junior School Staff currently have a machine
-20 iPads (Class set JS Kew and Donvale)
-4 iPads with LOTE Teachers

We can provision all JS Staff by purchasing just 11 iPads and begin professional learning for Staff in preparation for 2013.

- **Devices in the hands of students:**

The iPad takes learning to a new level and in 2013, it is proposed that all students from Prep – 4 be given the opportunity to work with an iPad in a 1:1 environment.

- **Professional Development:**

John Hattie suggests that the biggest influence on student learning and achievement is unquestionably the teacher. The teacher is central to the success of the initiatives in the classroom so we must invest in their professional development and training to ensure best practices are modeled.

In Term 4 2012, Junior School Curriculum Leaders will work with the Head of eLearning to develop a comprehensive iPad PD Plan for all Staff to undertake in 2013. This plan will include a direction for learning and examples of how to integrate the iPad into classrooms. It is intended that this plan will be based around the principles of the SAMR Model[7], which is designed to help educators integrate technology into teaching and learning. The pace of the professional development will be one that is appropriate for the individual teacher and will emphasize learner-centred goals. Teaching and learning buddies, teachie breakfasts as well as App of the week and extensive use of online spaces will all assist teachers to ensure that students are provided with engaging, relevant, real world learning.

In 2013, the preferred method of support for teachers is a full time Innovation for Learning consultant who will be responsible for providing authentic examples of how to utilize iPads in teaching and learning.

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[7] The SAMR Model, developed by Dr. Ruben Puentedura
http://msad75summertechnologyinstitute.wordpress.com/beyond-substitution/

It is expected that this consultant will spend at least 10 hours per week attending scheduled planning sessions with teachers across both campuses. In addition to this, the Innovation for Learning Consultant will be responsible for other iPad initiatives, team teaching and running professional development sessions. The Innovation for Learning Consultant will work closely with the Head of eLearning to ensure that teachers and students are supported in their endeavor to design digital learning experiences that incorporate 21st Century Skills.

- **Technical Support:**

The capacity of teachers to use the iPad to better meet and personalize student learning needs is illustrated through the enormous number of Apps that are available for educational purposes. Apps have redefined the way we think about software. Sophisticated but simple tools routinely sell for as little as 99 cents and many are free!

In order to ensure that teachers and students can harness the power of the many varied Apps available technical support must be offered to ensure that the syncing process is as seamless as possible. It is proposed that in 2013 we employ low end IT Assistants to manage the syncing and updating of the iPads. These Assistants (possibly ex-Carey or First Year University Students) will work closely with the Innovation for Learning Consultant, the Head of eLearning and ICT to ensure that the iPads are loaded with the required App software and ready for student use. It is expected that this support could be provided on a part-time basis to both schools (15 hours per week total).

Technically the iPads require less support than similar devices,[8] however it is paramount that the school's infrastructure is solid, and stable enough to handle in the influx of devices. Before the commencement of the school year in 2013, we need to ensure that the school's infrastructure can support the number of iPads. We must establish protocols for iPad set-up, maintenance, syncing and charging. With volume licensing imminent ('coming soon' on the Apple website) our current iPad management tool Casper will provide a base for the distribution of Apps.

Costs:

In September 2011, the ICT Steering Committee made the decision to delay the purchasing of new devices for Junior School Kew and Donvale until the year beginning 2013. It was thought that the introduction of the iPad Exploration Program for Staff would assist in our decision to determine what device would allow and encourage teachers to deliver rich 21st Century tasks. This has meant that the current MacBook's and iMacs used in both Junior Schools are into their fourth year of use.

Regardless of what specific device is chosen for 2013, the technology in the Junior Schools needs to be replaced. The age of the current MacBooks do not allow them to be maintained with current software and availability of parts for repairs are limited.

To replace the MacBooks under the current model we would require 258 new devices. Due to the decrease in size of the current MacBook models we would also be required to replace the existing trolleys with newer Trolleys to ensure appropriate security of the devices.

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[8] Department of Education and Early Childhood and Development's *iPad for Learning – In their Hands Trial Evaluation Report*, December 2011

The costs to the School would be:

Replace with MacBook Airs	
Macbook Airs $1,900	$490,200
Trolley's @ $2000	$54,000
iMacs @ $1,650	$34,650
	$578,850

This would be partially covered by the current Junior School Technology Levy of $150 and would result in the School expenditure of $350,250 over a three year period.

An iPad model provided by the School in 2013 would result in more devices to manage but would be at a reduce expense to the School.

To provide each student with an iPad would require the purchase of 539 iPads and 29 Trolley's to store them securely on site. Using iPads would also reduce the need to provide many iMacs in our ELC Area.

Replace with iPads 1:1	
iPads @ $700**	$377,300
iMacs @ $1,650	$11,600
Trolley's @$3600	$104,400
	$493,300

** Costs for iPad includes warranty, insurance and accessories (based on costs from Yr 5 program)

If we also consider that the current Junior School Technology Levy of $150 per year recovers $76,200 per annum the short fall that would be required to be covered by the School is $264,700 over the three year period.

However if we increased the Technology Levy to $200 per year see the school expenditure is reduced to $186,800.

With the introduction of iPads at Year 5 2012, the booklist cost decreased by JSK - $130 and JSD - $180. In 2013 a wider iPad 1:1 program will result in a decrease in booklist costs as Apps, which can be purchased for a minimal amount, will replace expensive textbooks and supplies. The accessibility, portability and instant on features of the iPad will also decrease the need for some classroom supplies.

Our streamlined approach to class pages being housed in ClassE (Blackboard) will also assist in decreasing printing and paper costs. It is expected that considerable money can be saved in other areas due to the implementation of an iPad 1:1 program across the Junior School.

It is expected that the Prep – Year 2 device will last for three years and the Year 3 and 4 devices will be on a two year plan.

As stated previously regardless of the device that is chosen in 2013, the technology in both Junior Schools needs to be replaced. On-going replacement programs for network infrastructure, projectors are factored into the existing ICT Budget. The existing infrastructure will be reviewed and replaced regardless of this decision.

In summary:

In 2013 the teachers at Carey Baptist Grammar School will not be teaching **to** the iPad, nor will they be **teaching** apps. They will be teaching skills and assessing student learning in a more dynamic way. Classrooms will promote; project-based learning and assessments will be more prevalent; and students will be more engaged in relevant, purposeful learning experiences.

In order for a 1:1 Program from Prep to 4 to be successful across both the Kew and Donvale Campuses the following is needed:

- **Teachers to be given iPads ASAP**
- **An Innovation for Learning Consultant (Full time)**
- **An iPad Technical Expert (15 hours per week)**
- **An infrastructure assessment to ensure appropriate preparedness for the program**

"Learning will only be 24-7 if what students are learning is intriguing and engaging.
Curriculum drives 24-7 learning, not the device"[9]

Education has gone through various changes over the centuries. However, none have been greater than the one occurring in this technological age. For the first time the way learning occurs is truly changing. Educators have limitless resources at their fingertips and have access to technology that can help them deliver their lessons effectively and efficiently. Students have access to vast stores of information and already have technological knowledge to access this information even before entering the classroom.

We are the pioneers of iPad technology in learning and there are certainly going to be challenges and changes – but mostly it is exciting and provides so many potential learning opportunities!

We are challenged by the Carey Charter to ensure that all decisions are taken to improve student learning. Introducing iPads into the Junior Schools will transform teaching and learning and help ensure our students are ready to lead and serve in the global community. Our significant experience as educators using technology and more recently iPads gives us the confidence to recommend and take this important step.

[9] Department of Education and Early Childhood and Development's *iPad for Learning – In their Hands Trial Evaluation Report*, December 2011