Department of Education and Early Childhood Development

iPads for Learning In Their Hands Trial

Evaluation Report

December 2011

I & J Management Services

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EXECUTIVE SUMMARY

To prepare students for the knowledge economy of the 21st century, schools must provide students with purposeful access to ICT that increases their participation, engagement and achievement in education. The Department of Education and Early Childhood Development's (DEECD) 2011 *iPads for Learning – In Their Hands* trial placed around 650 iPads in ten primary, secondary and special schools.

An evaluation of the trial examined the use of iPads by students and teachers, and found that under the right conditions the iPad can significantly enhance teaching and learning outcomes within and beyond the classroom. The evaluation findings are summarised below.

1. The iPad (as a device) has functionality and features that enhance its use as an effective and engaging learning tool.
    a) The iPad is easy to use. It is intuitive and users of all ages and abilities (including children with learning difficulties) do not require special training or professional learning on how to turn it on, navigate through and use apps, and maintain the iPad (i.e. charge and sync the iPad, update apps).
    b) The touch-interactive flat screen tablet with pinch in/pinch out functionality provides students with autism, ADHD, Aspergers, visual disabilities and poor fine and gross motor skills with more efficient access to effective learning opportunities.
    c) High speed access to online information enables more self-directed learning and rapid access to a fast-growing market of relevant and regularly updated educational apps.
    d) Portability enhances collaboration between students and communication between students and teachers, increases parental engagement in learning and strengthens home-school connections.
2. The iPad is just a device. It is just another tool (albeit a powerful 'anything anytime anywhere' tool) in the teaching and learning toolkit.
3. Quality teaching is (as has been found in other studies) the factor which enables the iPad to be used effectively to improve student motivation, engagement and learning outcomes.

    'Learning will only be 24-7 if what students are learning is intriguing and engaging. Curriculum drives 24-7 learning, not the device.' (Teacher)

    a) Teachers used the iPad to meet the specific learning needs of students and support engaging, interesting and collaborative learning.
    b) Students used the iPad to take greater control of their learning, using a single device to search for information on the internet, practise specific skills with selected apps, create keynotes and multimedia presentations, and present and share their learning with their peers, teachers and family.
    c) Teachers found the iPad to be an especially valuable learning tool for students with special learning needs due to the combination of its design features, multi-functionality and access to specific purpose apps.

    'To be deaf is to have barriers every day, and to be reminded of your difference every day. What this device does as a 1:1 device is to empower individuals who want to access information and who want to feel in control of their learning.' (Teacher, Victorian College for the Deaf)

    d) Students used the iPad to improve their learning outcomes, especially in literacy, numeracy, communication and thinking skills.
    e) The iPad was used to extend learning beyond the classroom, facilitating learning wherever the student had the iPad (at home, at camp, on an excursion) and increasing parental engagement in learning.

4. 90% of students said that learning was more fun when using the iPads.
   - 76% of teachers said that students had (to a 'great' or 'large' extent) greater choice and flexibility in their learning.
   - 85% of primary teachers and 90% of special school teachers thought that students were more motivated and engaged in learning, vs 32% in secondary schools.
   - 67% of teachers said that use of the iPad had improved their effectiveness as teachers, and 75% were using ICT more effectively in teaching and learning.
   - 83% of primary teachers and 67% of special school teachers thought that using the iPad had improved students' literacy outcomes, vs 16% in secondary schools.

5. Teaching and learning success with iPads is more likely where they are used in a supportive school and home environment.
   a) School leaders actively encourage the purposeful use of iPads as a strategic support for improving student outcomes, and facilitate teacher access to pedagogically-focused professional learning opportunities.
   b) Students and teachers have timely access to quality technical advice and support. Once set up the iPad requires less technical support than similar devices, but a 1:1 ICT roll out can put stress on a schools' ICT infrastructure (e.g. network, bandwidth).
   c) Parents are informed about and understand the way in which iPads will be used to support their child's learning, participate as necessary in maintaining the device as 'ready for learning', and take an active interest in their child's learning.

6. iPads in the trial had a significantly greater educational impact (and were more successfully implemented) in primary and special school settings than in secondary schools.
   a) This was in part related to structural differences between contemporary primary and secondary classes. That is, a primary teacher has a dedicated class of students and can more easily incorporate cross-curricular learning and inquiry based learning into everyday practice, with the iPad ever-present as a learning tool. Secondary students have multiple teachers timetabled to independently deliver specific subjects.
   b) Primary and special school teachers in the trial also demonstrated greater preparedness and capacity to incorporate the effective use of iPads into learning and assessment activities. They taught lessons where students could choose to use the iPad to facilitate, enhance and share their learning. Teachers in secondary schools were more likely to use the iPad as a simple substitution device (e.g. just to search the internet).
   c) Each of the primary and special schools in the trial had a staff member in a leadership role who was responsible for the iPad trial, who successfully facilitated staff engagement, access to professional learning, classroom implementation, curriculum redesign and technical support, and was personally also a competent and confident user of technology. This was not the case for all secondary schools in the trial.

DEECD's 2011 *iPads for Learning – In Their Hands* trial investigated the capacity of iPads to:

- increase independent and self-initiated learning among students
- increase student motivation and active engagement in learning
- improve teachers' capacity to plan for and meet individual student needs
- improve student learning outcomes
- extend students' learning beyond the classroom
- improve parental engagement in learning and strengthen home-school links.

The trial has shown that all of these outcomes can be achieved through the effective use of iPads. But it is quality teaching and support that makes this possible, not just the device.

1. INTRODUCTION

1.1. iPads for Learning – In Their Hands Trial

The Department of Education and Early Childhood Development (DEECD) has a vision for equipping all young people with the skills and capabilities they will need for economic, social and cultural success in the 21st century. It is acknowledged that regardless of their background or circumstances, every Victorian child and young person should have the opportunity to engage in creative and intellectual pursuits and be the best they can be in all aspects of learning and development. To prepare students for the innovation and knowledge economy of the 21st century, schools must provide students with purposeful access to information and communications technology (ICT) environments that increase their participation, engagement and achievement in education.[1]

DEECD aims to ensure ICT is integral to teaching and learning by increasing independence and self-initiated learning in students, and extending their learning beyond the classroom. Studies have shown[2] that where ICT has been successfully embedded in learning a positive impact on student achievement is more likely.

DEECD's 2011 *iPads for Learning – In Their Hands* trial (the iPad trial) involved at least 660 iPads in ten primary, secondary and special school settings.

School	Number of iPads	Student cohort
Ringwood North Primary School *#	138	Years 5 and 6
Sunbury Downs Secondary College	104	Year 8
Manor Lakes P-12 College *#	103	Year 6
Victorian College for the Deaf (VCD) #	85	Specialist (whole school)
Warringa Park School *#	71	Specialist (whole school)
Westall Secondary College *	57	Year 8
Dimboola Memorial Secondary College	36	Year 8
Epsom Primary School #	26	Years 5 and 6
Victorian College of the Arts Secondary School *#	24	Year 8
Royal Children's Hospital – Education Institute @	22	General
Total	**666**	

* The number of iPads in these schools has increased beyond the number of iPads rolled out as part of the trial. VCASS and Westall SC have extended iPads into their Year 7 cohorts via parent lease arrangements. Through its own purchase of iPads Warringa Park has now rolled out iPads across the whole school, with more than 400 iPads for all students, teachers and teacher assistants. Ringwood North PS and Manor Lakes have purchased additional iPads to extend iPad use to other year levels in the school.
# These schools purchased additional iPads for teachers.
@ RCH Education Institute also received 15 iPads from the Koala Foundation for students in the cancer ward.

Each school was provided with iPads (including two for teaching staff) and a range of supports to trial the use of iPads as learning tools. The purpose of the trial was to investigate the capacity of iPads to:

- increase independent and self-initiated learning among students
- increase student motivation and active engagement in learning
- improve teachers' capacity to plan for and meet individual student needs
- improve student learning outcomes

[1] *iPads for Learning – In Their Hands Trial*, DEECD Evaluation Brief.
[2] Condie, R. and Munro, B. *The impact of ICT in schools – a landscape review*, 2007.

- extend students' learning beyond the classroom
- improve parental engagement in learning and strengthen home-school links.

1.2. Evaluation

DEECD engaged I & J Management Services to evaluate the effectiveness of iPads in contributing to achievement of student, teacher, school and system objectives. Running from October 2010 to December 2011, the evaluation assessed the impact of iPads on learning and is intended to inform any future rollout of iPads across Victorian government schools. The evaluation sought to answer the following general questions for both mainstream and special schools:

- What has been the impact of iPads on students, teachers and parents involved in the trial?
- What capacity does the iPad have to enhance teaching and learning within and beyond the classroom?
- What evidence is there of improvement in student learning that can be attributed to or associated with the use of iPads?

The evaluation aimed to provide evidence and examples of the extent to which the trial's objectives were realised, as well as:

- identifying any pedagogical, administrative or operational barriers or issues and how these were, or might be overcome
- providing an overview of how the functions and features of iPads have been used, and which have had the most impact.

The evaluation methodology incorporated a blend of different data collection approaches (e.g. site visits, interviews, surveys, monitoring Twitter and online forums, attendance at centrally organised professional learning activities). An online survey of teachers involved in the trial was conducted in Term 1. Surveys of teachers, students and parents were conducted during Term 4 2011.

This report presents the findings of the evaluation in the following way.

Section 1	**Introduction** to the iPad trial and the evaluation
Section 2	**The iPad as a device** describes the features of the iPad that contribute to its effective use in schools
Section 3	**iPads can …** describes the capacity of iPads to improve teaching and learning processes and outcomes
Section 4	**The Value Add** describes two contexts where the use of iPads in school education is particularly valuable
Section 5	**Making it Work** identifies the factors which most influence the effective use of iPads as a learning tool
Section 6	**Conclusions** and recommendations arising from the evaluation
Appendix A	**The iPad Trial** describes the roll out of the trial in the 10 participating schools
Appendix B	**Evaluation Surveys** presents the results of the Term 4 teacher, student and parent surveys
Appendix C	**Favourite Apps** lists teachers' and students' favourite apps
Appendix D	**Trial Implementation** examines DEECD's roll out of the iPad trial.

Throughout the report, schools have not been named (specifically or as primary/secondary/specialist) unless this is relevant to the finding being discussed.

2. THE IPAD AS A DEVICE

Teachers and students participating in the iPad trial have from the outset found the iPad to be an intuitive, portable and robust device with functionality that facilitates learning that is independent, self initiated and provides opportunities for research, accessing information, creating, collaborating and sharing.

Easy to use

The iPad is easy to use. Students of all ages (predominantly students from Years 5 to 8), and especially students with special physical, intellectual and learning needs have all been able to quickly familiarise themselves with the way the iPad works, download and access apps, and navigate to their chosen apps.

At one school, for example, Year 6 students regularly use the iPads with their Prep Buddies in a program known as iBuddies where the older students mentor the younger ones in using the iPad to create stories and presentations. Following a prep visit to a local farm the Prep students, with the aid of their Buddies, created multimedia posters including voice recordings of their favourite animals.

It should also be noted that teachers do not need to be experts in the technical application of the iPad to be able to use it effectively for teaching and learning purposes.

Portability

The portability of the iPad (i.e. lightweight, single device without accessories, long battery life – '*all day vs two hours on a Netbook*') means that students can have it with them in many places, highlighting the potential for learning anywhere anytime – in class and at home, formal and informal.

> *'My iPad allows me to have everything with me all the time.'* (Student)
>
> *'It is very helpful to take around places without plugging a cable to the computer all the time.'* (Student)

For example, in Term 2 a trial school took a class of students to the Melbourne Zoo, with their iPads. Having immediate access to a range of learning tools (e.g. note taking, images, loaded apps) teachers were able to create learning tasks that effectively bridged the offsite experience with classroom activities. Students used iPad apps to take notes, voice record their impressions of the exhibits, and use drawing apps to capture images of the animals' and their environment.

Teachers report and the evaluation has observed students sitting in small groups or moving around the classroom passing iPads to one another or peering over shoulders to show off what they have done or discovered. This sharing of learning is enabled by the iPad's size, screen and portability. In addition, the iPads' portability is strengthening home-school connections and increasing parents' awareness of student progress. When the iPad goes home on a regular basis parents are more easily able to see what work their child is doing and engage with that learning.

Robust device

Schools report that the iPad is a robust device that withstands regular use and being moved around, passed around and used in different learning environments. The trial experienced only moderate damage to the iPads across all sites. According to DEECD's Ultranet team the iPad has a damage rate on par with netbooks and other ICT devices.

Schools report that there were few warranty claims on the iPads (due to device failure). These were addressed by Apple replacing the iPad which generally occurred without trouble. Damage to the iPads was most common in terms of broken screens caused by the device being dropped or misused in some other way. Damage was reportedly higher in secondary schools, this may be perceived as these students havingless ownership and responsibility for care of the device relative to primary age students

Functionality

The iPad's speed and functionality enhances collaboration and communication, as well as self-directed learning and assessment.

For example, two schools established online forums using social networking to enable students to connect, communicate and share ideas with one another. Students at another school are emailing learning outputs to one another and their teacher, seeking feedback on what they have done. This type of functionality is not exclusive to the iPad, but the speed of connection and the device travelling with the student wherever they are means that this form of communication has become more commonplace than with other technologies (e.g. students have noted that sending an email with the iPad away from school is much quicker than turning on a PC, waiting for it boot up, getting on the internet, and so on). Where teachers have been responsive in providing feedback this has encouraged further use of the iPads in this way.

The iPads are also facilitating collaboration between teachers as they have found it easy to send ideas, apps and examples of students' work to one another, increasing connectivity, curriculum planning and professional dialogue.

Teachers noted that the iPad allows students to direct their own learning in their own time. For instance, the final evaluation survey found that 70% of teachers thought that to a 'great' or 'large' extent the iPads had enabled students to take greater ownership of their learning, vs 59% in the baseline survey, but the iPad does present an option for self-motivated students to easily access opportunities to further their learning.

For example, teachers at VCD have talked about their students' low level of general knowledge, which is influenced by the fact that deaf people do not hear and are therefore less likely to be engaged in incidental conversations. The iPad provides these students with fast access to information, so when a question arises they can quickly get an answer and not have to wait to access a computer lab. Teachers at both VCD and Warringa Park commented that several of their students were now reading newspapers (online through the Herald Sun app), something they had not previously done.

Teachers have also noted that students can easily use iPad tools to capture evidence of their learning (e.g. podcasts explaining their workings of mathematical problems), allowing the teacher to assess the learning process as well as the student's learning outcome.

Technical support

A Term 3 survey of technical support staff in the trial schools found that iPads had a lower demand on ICT support than other learning devices ('much less than Netbooks'). Respondents commented that after an initial set-up phase, the iPad being an easy to use self-managed device meant that both teachers and students were able to deal with most issues that arose.

> *'Initial set up on par with other devices. General support is less than for netbooks.'* (School technician)

'Staff initially sought help for all tech issues. Now more able to problem solve for themselves.' (School technician)

'iPads feature in less than 20% of all IT issues in the school, (which means that we are) able to reduce overall tech time.' (School technician)

The major technical issues experienced during the iPad trial were not related to the device itself, but wireless internet connectivity in schools with more students trying to access the internet placing increased demands on school's ICT infrastructure.

Technological evolution

The iPad is constantly evolving. The 2011 release of the iPad 2 with additional functionality is a physical evolution of the device, with iPad 3 scheduled for release in March 2012. But more significantly, the constant development of new apps and free upgrades to existing apps means that there are always new learning opportunities to be had. Teachers in the iPad trial, bloggers and Twitterers are reporting that app developers have recognised the market for school-based applications and that more educational apps are emerging. Many of these apps are free or low cost, are regularly updated at no additional charge, and do not require special licensing or additional software for use on the device. Apple also has special educational features on its website and has opened the *Apple Store for Education,* providing a special repository for apps specifically focused on teaching and learning.

The search for new apps is not a task restricted to teachers. For example, having finished a classroom activity on mathematical factors (involving use of pen and paper and the iPad), students at one school were encouraged to spend the last 15 minutes of the class at the iTunes store looking for new mathematics apps. By the end of the class students were sharing the fruits of their research with one another and interacting with the newly discovered apps, cementing the earlier learning activity. At the same time the teacher was thinking about how these newly collected apps might be used in future lessons.

It should be noted however, that while individual apps are constantly emerging or being enhanced, constraints on volume licensing limit DEECD's capacity to view iPads as an enterprise solution.

3. IPADS CAN …

The purpose of the iPad trial was to investigate the capacity of iPads to:

- increase independent and self-initiated learning among students
- increase student motivation and active engagement in learning
- improve teachers' capacity to plan for and meet individual student needs
- improve student learning outcomes
- extend students' learning beyond the classroom
- improve parental engagement in learning and strengthen home-school links.

The trial clearly demonstrates through numerous examples and different sources of feedback that all of these outcomes can be achieved through the use of iPads. However, for the most part it is not the iPad that is the determining factor. As has been found in other DEECD evaluations of the use of technology in teaching and learning[3], there is no substitute for quality teaching. This is what makes the difference (see Section 5).

The iPad is just a learning tool – another tool in the toolkit, another pencil in the pencil case – albeit an intuitive, portable, robust and fun learning tool. And teachers can and have used this tool very effectively to meet the specific learning needs of students and creatively provide engaging, interesting and collaborative learning.

Alternatively, as occurred in some classes, the tool can be used as a low level 'substitution' mechanism for delivering learning activities. For example, the evaluation observed a class undertaking a brainstorming activity where the sole use of the iPads was to record notes. It was not used to group and theme the notes, either within a student group or between groups of students. It was not used to present findings. It was not used to explore issues emerging from the brainstorming. The iPad was simply used as a substitute for pen and paper, butchers' paper or a whiteboard.

More often, the use of the iPads in the trial was higher up the continuum of technology use in learning[4]:

- augmenting learning through the use of specific iPad functionality
- modifying learning by giving learners a different kind of assignment (e.g. using multimedia to add sound or video, where the media enhances the message being communicated)
- redefining learning and doing something that was inconceivable without the technology (e.g. giving students a stage for posting on the web with a feedback loop so that the audience for presentation and review is the world).

Before describing the ways in which iPads have been used in the trial to improve teaching and learning outcomes, there is one further very important qualifying statement to be made. That is, that the impact from, level of enthusiasm for, and quality of outcomes from the iPad trial were demonstrably better in primary and special school settings than they were in secondary schools. The reasons for this will be discussed here and in Section 4, but essentially examine the question of whether this is a feature of the particular schools in the iPad trial and their implementation of the trial, or is it symptomatic of a real structural difference in the potential of primary and secondary schools to effectively use the iPads? The answer would appear to be a combination of both.

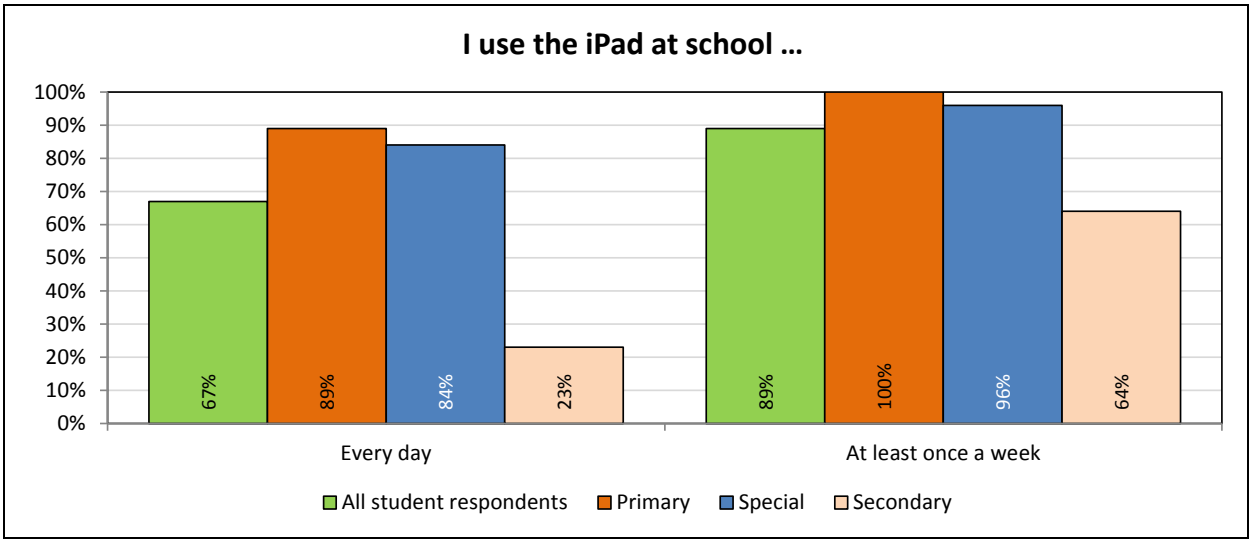
[3] *Teaching and Learning with Web 2.0 technologies*, Findings from 2006 – 2009, DEECD March 2010.
[4] *Strive for Transformation*, Stephanie Hamilton, Apple World Leadership Summit, 2010.

At the beginning of the iPad trial primary teachers were more optimistic about iPads:

- enhancing student motivation
- providing high level engagement tasks
- increasing student access to richer learning opportunities
- catering for students' personalised learning needs
- leading to more student centred learning.

In particular, primary teachers who work with students in the formative stages of their development had much higher expectations that using iPads would improve students' literacy and numeracy skills and outcomes.

In practice, the trial showed a very clear difference in the levels of use of the iPads in different school settings. Only 23% of students from secondary schools that completed the final evaluation survey reported that they had used their iPad every day at school, compared with more than 80% of students in primary and special schools. Nearly all primary and special school students used their iPad at school at least once a week, while less than two thirds of secondary students had this level of use.



With this differential in iPad use at school, it is to be expected that the impact of the iPads on student learning would be significantly lower in secondary schools participating in this trial than for other schools involved in the trial.

3.1. Increase independent and self-initiated learning

The iPad is a device that students of all ages and abilities have found easy to use. Navigating to and through apps is intuitive and generally requires little or no special skills. There are also many different apps available that students can choose to use for specific learning (e.g. reading, writing, spelling, mathematics) as well as many apps that help students to research information, compile and sort their ideas, and present their learning through text, images (photos, movies, animations) and/or sound.

The ease of use of the iPad and access to apps that offer choice and flexibility are two factors which have contributed to the iPad enabling students to take a more active role in shaping and owning their learning.

In the final evaluation survey 72% of teachers reported that using the iPads had led to more student-centred learning. This was an increase on the 60% of teachers from the baseline survey who thought

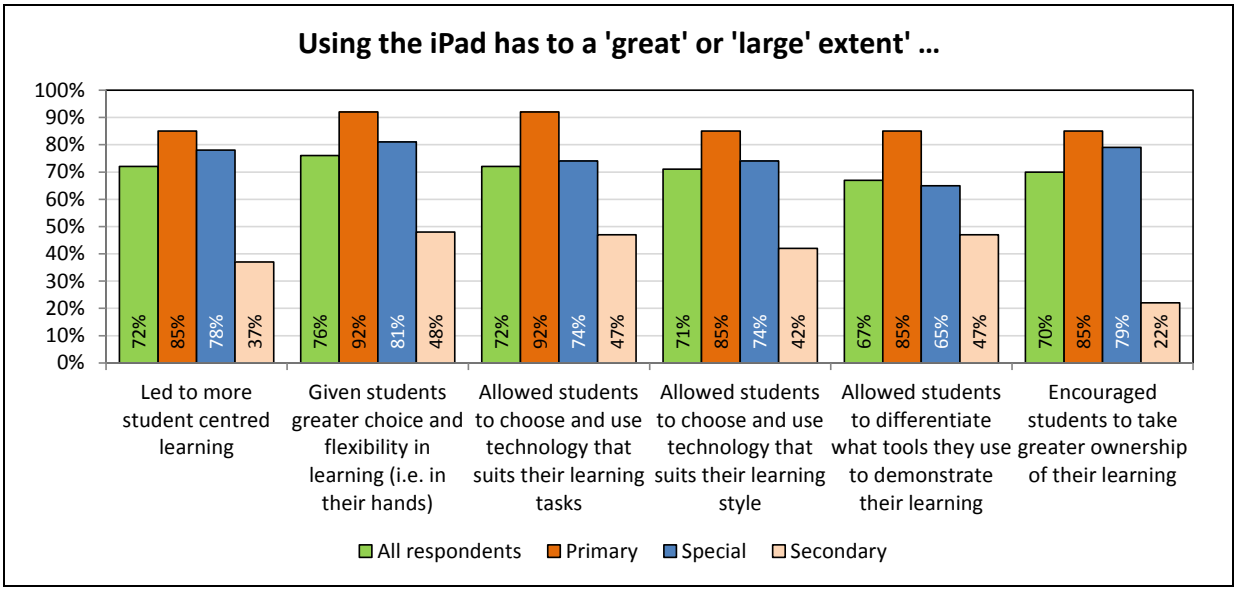
that this would be an outcome from the trial. Teachers also reported that the iPads had had a significant impact on the extent to which students had:

- greater choice and flexibility in their learning (76% of teachers said that has happened to a 'great' or 'large' extent, vs 70% who expected this in the baseline survey)
- been able to choose and use technology that suited their learning tasks (72% … 60%)
- been able to choose and use technology that suited their learning styles (71% … 66%)
- been able to differentiate what tools they used to demonstrate their learning (67% … 60%)
- taken greater ownership of their learning (70% … 59%).

'We have seen so many examples of students continuing to use them in their own time for educational purposes. For example, after doing procedural text as a writing style , some children went home and created their own topic based on the writing style.' (Teacher)

'It helps me be more independent, instead of relying on the teachers all the time.' (Special school student)

Across all of these areas related to increased independence and self-initiated learning, around 70% of teachers assessed the impact of the trial as 'great' or 'large'. These results were 5% to 10% higher than reported in the baseline survey, validating teachers' initial optimism and demonstrating the value of the iPad in enabling students to personalise their learning.



The feedback from teachers in primary schools was generally around the 85% to 90% level, with the balance of teachers still positive about the impact of the iPads, but not at this upper end of the response scale. Feedback from teachers at special schools had around 75% to 80% in the top range. However, less than 50% of teachers from secondary schools rated the impact of the iPad at this level, and only 22% thought that the use of the iPad had encouraged students to take greater ownership of their learning.

Examples of the ways in which students used the iPads in their learning illustrate the device's capacity to support student choice in how they went about their learning and shared it with their teacher and their peers.

Primary *Exploration and sharing*	Students have been learning using the Epic Citadel app, which is a virtual world which allows them to explore an ancient castle. The students were challenged to use the app to create a short story or film using screen shots from the app. They were able to use Strip Designer, Doodle Buddy, Reel Director or any other app of their choosing to present their story. Some of the students presented their work and demonstrated how they used the iPad to participate in the challenge at DEECD's 2011 Innovation Showcase.
Primary *Flexibility*	Students were shown how to take 'skinny notes' (i.e. key points) on a piece of text, with the teacher using a digital text on the iPad and taking notes on a poster. Students were then asked to practise the skill. Some students selected a digital text using their iPad and took notes using apps such as Notes and Pages. Other students chose to use the iPad for part of the activity (either by selecting a digital text and using paper to collect their notes or using a hard copy text and using the iPad apps to take their notes). Some students did not use the iPad at all and instead selected a hard copy text and pen and paper for the entire activity.
Secondary *Presentation*	Students wrote an acrostic poem as part to their English lessons. They were then tasked with developing that into a poster using the iPad. Students used Keynote, Doodle Buddy and Pages to present their poem.

When asked in the evaluation survey how they had used the iPad in the learning the most common use was in accessing the internet to search for information (79% of students used the iPad at least 'most of the time' for this task). The iPad was also well used for creating presentations and summarising learning, as indicated by the popularity of the Keynote app among both students and teachers (see Appendix C). Selected apps were used for 'skill and drill' type learning, often in maths or spelling, using apps relevant to the learning level of each child or class.

Responses expressed as % of student respondents	All the time (4)	Most of the time (3)	Some of the time (2)	Occasionally (1)	Never (0)	Aver.
▪ Using the internet to search for information	49	28	10	6	7	3.08
▪ Creating keynotes, ePubs, mind maps that summarise your learning	29	22	21	14	14	2.38
▪ Using apps that help you practice a skill (e.g. maths drills, typing apps, spelling)	26	24	21	16	13	2.33
▪ Downloading pictures (e.g. from a digital camera, mobile phone or the internet)	25	23	20	16	16	2.26
▪ Write, send and receive emails	22	25	24	17	12	2.26
▪ Creating multi-media presentations (e.g. using sound, pictures and videos)	21	19	23	20	17	2.08
▪ Take notes	13	23	33	17	14	2.04
▪ Organising my work (e.g. creating folders, making task lists, calendars)	17	21	26	18	18	1.98
▪ Writing stories	13	20	22	25	20	1.83
▪ Creating movies	12	15	18	18	37	1.47
▪ Updating or maintaining a blog or a wiki	11	13	14	18	44	1.25
▪ Listening to a podcast	8	11	15	23	43	1.16
▪ Making a podcast	7	8	20	18	47	1.09

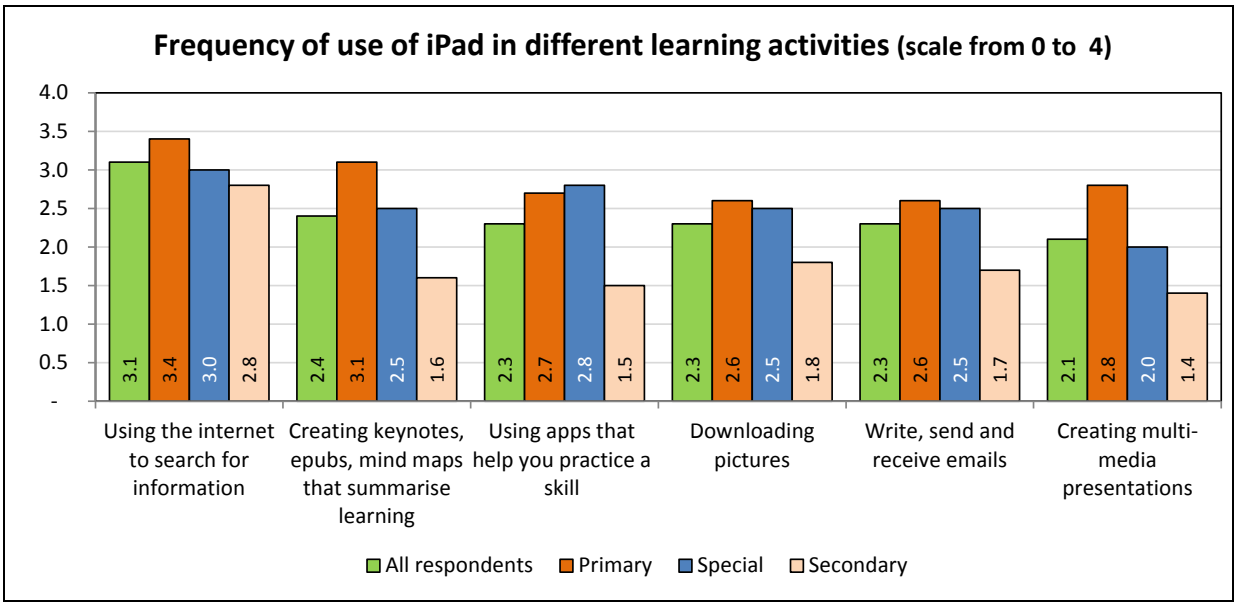
For example, primary students frequently sought out apps from the App Store to assist them in practicing a new skill that they had just been taught (e.g. using Factor Samurai to practise and reinforce use of factors and times tables).

'I can make books. I can practise spelling and maths. My spelling is getting better because I write a lot.' (Special school student)

At RCH Education Institute the teachers do not always get to see every patient every day. Being able to leave the iPads with the students at the Neuroscience Ward enabled the student to continue working with apps to improve their learning.

The variation in the type of use of the iPad between schools in the trial may help to explain the differences reported between primary, special and secondary schools. As shown in the following table the frequency of use of the iPad by students in secondary schools was much lower than in other schools, and there was less diversity in the type of use.

Average score for frequency of use of the iPad by type of learning activity: 4 = All of the time … 3 = Most of the time … 2 = Some of the time … 1 = Occasionally … 0 = Never	All students	Primary	Special	Secondary
▪ Using the internet to search for information	3.1	3.4	3.0	2.8
▪ Creating keynotes, ePubs, mind maps that summarise your learning	2.4	3.1	2.5	1.6
▪ Using apps that help you practise a skill (e.g. maths drills, typing apps, spelling)	2.3	2.7	2.8	1.5
▪ Downloading pictures (e.g. from a digital camera, mobile phone or the internet)	2.3	2.6	2.5	1.8
▪ Write, send and receive emails	2.3	2.6	2.5	1.7
▪ Creating multi-media presentations (e.g. using sound, pictures and videos)	2.1	2.8	2.0	1.4
▪ Take notes	2.0	2.4	2.3	1.5
▪ Organising my work (e.g. creating folders, making task lists, calendars)	2.0	2.6	2.1	1.2
▪ Writing stories	1.8	2.1	2.1	1.3
▪ Creating movies	1.5	2.2	1.3	0.7
▪ Updating or maintaining a blog or a wiki	1.3	1.7	1.0	0.9
▪ Listening to a podcast	1.2	1.6	1.1	0.7
▪ Making a podcast	1.1	1.6	1.1	0.6



For example, primary students have relatively high use of the iPad across a range of different learning activities, in particular in creating keynotes, Mind Maps and multi-media presentations. Special school students use the iPads more than any other group for 'skill and drill' type activities – a priority application for developing these students' basic learning skills. The most common uses of the iPad for secondary schools students are searching the internet, downloading pictures and writing, sending and receiving emails. Compared to the ways in which primary students are encouraged to use the iPad, the use in secondary schools is relatively unsophisticated, simply using the iPad as a substitution device doing things that could be done equally well on any other technology.

3.2. Increase student motivation and engagement

Ninety percent of students surveyed said that using the iPad made learning more fun, and 88% said it made learning more interesting. The results were universally positive, but higher for primary school students (96% fun, 92% interesting) than they were for special school students (89% … 89%) and secondary students (81% … 80%).

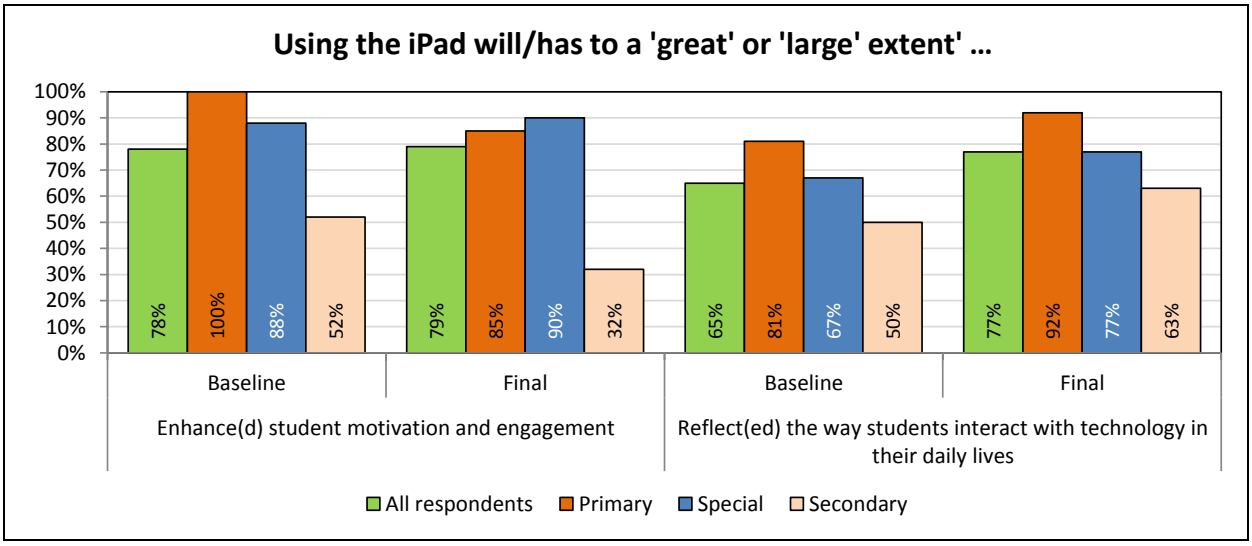
> *'The iPad helps me concentrate because it's far more fun than a pen and paper.'* (Student)

> *'It helps me to learn because I'm more excited to use the iPad and I focus better when I'm on the iPad.'* (Student)

> *'The iPad helps me learn because it actually makes me want to learn, which helps me get into it.'* (Student)

> *'It makes the lessons interactive and very good for doing Mind Maps and small projects or assessments.'* (Student)

Teachers also report that using the iPad has increased student motivation and engagement in learning. Eighty five percent of teachers in primary schools and 90% of teachers from special schools thought that to a 'great' or 'large' extent this increased motivation had occurred when students were using the iPads. However, only 32% of teachers in secondary schools thought the impact on student motivation and engagement had been at this level. More than half (53%) thought that there had been a 'fair' degree of impact.



'They love their iPads. They feel proud that they are experts at using it.' (Teacher)

'Greater engagement and flexibility, some inspiring student outcomes in terms of work produced, vital skill acquisition for 21st century learners.' (Teacher)

'Huge successes with individual learning goals, students are engaged and motivated to learn.' (Teacher)

Primary *Engagement*	Students used the iPad to explore areas of personal interest. Keynote presentations of Harry Potter have been worked on both at school and at home and encouraged reluctant learners (and in particular a group of Grade 5 boys) to research, gather information and pictures, and compile their findings into a coherent format. During a visit by the evaluator this group of boys was very keen to show off their presentations (reportedly something they would not normally do).
Primary *Learning to love reading*	A 12 year old student who had a reading level at Grade 2 was a reluctant reader due to his low literacy level. Since having his iPad he has been, with his parents' encouragement and support, downloading iBooks that have helped him to read. He can read the story, the iBook has an inbuilt dictionary, and if he chooses can have the iBook read to him (via an audio file).

Teachers also recognised that using the iPad reflected the way students interacted with technology in their lives. Again, there was a disparity in response by school type, but in all cases there had been an increase in teachers' appreciation of this factor over the course of the trial.

When asked in the evaluation survey whether they liked to use the iPad, 68% of students said 'Yes – absolutely'. Twenty five percent said 'sometimes' and 7% said not at all. The results were higher among primary (75%) and special school students (76%) than they were for secondary students (52%).

Responses expressed as % of student respondents	All students			Yes – absolutely		
	Yes - absolutely	Sometimes	Not at all	Primary	Special	Secondary
▪ I like to use the iPad	68	25	7	75	76	52
▪ My teacher(s) likes to use the iPad	60	35	5	75	76	25
▪ I like to work on my iPad on my own	44	48	8	44	57	32
▪ I like to work on my iPad with other students	34	51	15	36	46	20
▪ I prefer to use an iPad than a computer (desktop, laptop, notebook)	33	44	23	33	45	22

There was some feedback from secondary teachers that the increase in student and motivation that they had expected through the use of the iPads did not eventuate.

'They have experimented with different types of technology, but some students have become blase about the use of ICT in schools. iPads have begun to be taken for granted.' (Teacher)

'They have become very ICT-savvy, but less focused in lessons.' (Teacher)

Fourteen percent of secondary students said that they did not like using the iPads at all. They commented that they did not see the iPads as learning tools. They saw them as a recreational

technology, like their iPods, phones and gaming devices, and did not like the idea of a cross-over between personal and educational technology.

'It doesn't (help) really. It's just a useless piece of technology that limits creativity.' (Student)

It should be noted that this cohort of students has spent most of their school years without having contemporary technology as part of their learning process, and may have a view of 'learning' that is more traditional than students in Years 5 or 6 for whom half their school life has involved netbooks, interactive whiteboards and the internet.

It should also be noted that only 25% of secondary students in the evaluation survey reported that their teachers liked to 'Yes – absolutely' use the iPad. Primary and special school students had a very close match between their own enjoyment of using the iPad and their perceived view of teacher enjoyment in using the iPad, but this did not exist among secondary students. If this is an reflection of teachers' attitudes to use of iPads in learning, it would also go some way to explaining the differential response to the iPad trial observed in secondary schools.

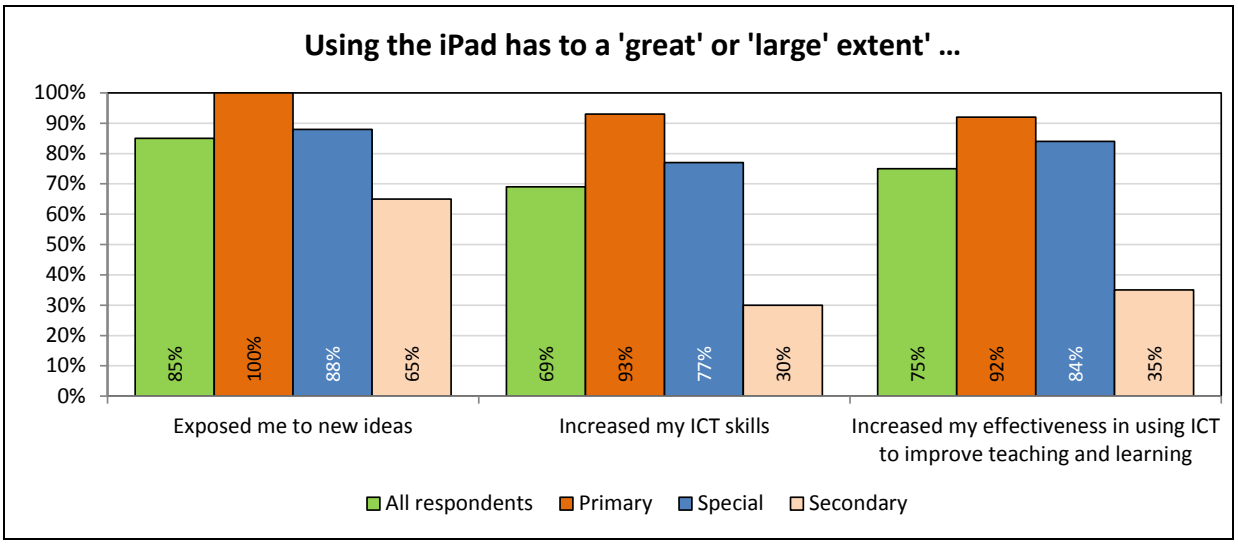
3.3. Improve teachers' capacity to meet learner's needs

A clear majority of teachers participating in the iPad trial believe that using iPads in their teaching has enhanced their capacity as teachers and enabled them to better design and deliver programs to meet the learning needs of their students.

Building capacity

In the first instance, using the iPad increased teachers' ICT skills and confidence, with a flow on to their personal use of technology.

- 85% of teachers said that to a 'great' or 'large' extent using the iPad had exposed them to new ideas.
- 69% said that to a 'great' or 'large' extent using the iPad had increased their ICT skills.
- 75% said that to a 'great' or 'large' extent using the iPad had increased their effectiveness in using ICT to improve teaching and learning.



Against all of these capacity questions teachers' responses to the final evaluation survey showed a significant change on their expectations as recorded in the baseline survey in Term 1. In each case

there was a 10% increase in the proportion of teachers who rated the impact of the iPad on their ICT capacity as 'great' or 'large'.

> *'Before being part of the iPad trial, I had not used iPads for personal use or in the classroom. I now use the iPads competently and effectively in the classroom to increase student learning outcomes.'* (Teacher)

And as noted throughout the evaluation, the impact of the iPads in primary and special school settings was much greater than in secondary schools.

Pedagogy

Forty five percent of teachers in the baseline survey thought that using the iPad would increase their effectiveness as a teacher. By the end of the trial the proportion of teachers rating the impact of the iPad in their teaching effectiveness as 'great' or 'large' had increased from 45% to 67%. As reported in the final evaluation survey, to a 'great' or 'large' extent the use of the iPad in teaching had enabled:

- 70% of teachers to better present content information in multiple ways
- 68% of teachers to better cater for students' personalised learning needs
- 68% of teachers to better develop high level engagement tasks
- 66% of teachers to adopt different approaches to classroom organisation.

> *'Before participating in this trial, I was unaware how to use web based tools – wikis, blogs, etc. – for personal use, let alone to engage and enhance student learning. Using the iPad has assisted me to take my teaching to the next level in terms of the curriculum, lessons and programs that I offer the students and to expose my students to more meaningful learning opportunities.'* (Teacher)

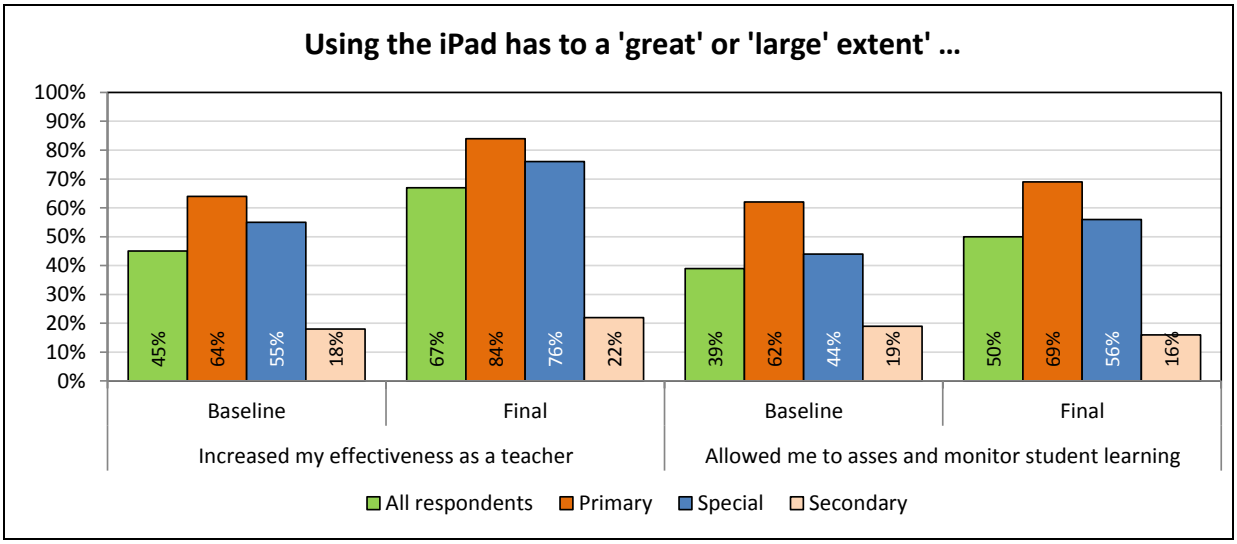
> *'I see the iPad as a tool, not as a replacement for explicit face to face teaching, learning, activities and discussions. I love the instant access to apps and the Internet and that the whole class can look things up quickly. I love that students can write essays and email them to me.'* (Teacher)

> *'I work with young people in the outpatient area of the hospital, and therefore have 5 minutes to 1 hour to work with a student as they wait for their appointment. I use the iPad to assist with a quick evaluation of their strengths and weaknesses in literacy and numeracy, and also their concentration span and learning strategies. I can also have quick tutorials which benefit students with a concept, and build self-confidence.'* (Teacher, RCH Education Institute)

> *'It has allowed me to quickly access the internet to research information on various topics. I also use some of the applications in my classes that are science related.'* (Teacher)

In most cases there was no significant change in teachers' overall responses between the baseline and the final evaluation survey, and not enough to explain the self-assessed increased in teaching effectiveness. The one area where there was a significant change was in the use of the iPad to support assessment and monitoring of student learning. A major factor in this outcome has been the use of the iPad by students of all ages to creatively communicate and present their learning to their teacher and their peers – using Keynotes, movies and multimedia presentations. The use of apps with in-built assessment metrics has been another influencing factor, especially for skill-based apps that were used by teachers in some of the primary and special schools in the trial.

% teachers reporting impact of using the iPad on their teaching as 'great' or 'large'	Baseline survey	Final survey	Change
▪ Effectiveness as a teacher	45	67	+ 22
▪ Assess and monitor student learning	39	50	+ 11
▪ Collaborate with other teachers in curriculum planning and design, teaching and assessment	50	54	+ 4
▪ Use more explicit teaching techniques	46	49	+ 3
▪ Develop high level engagement tasks	66	68	+ 2
▪ Cater for students' personalised learning needs	67	68	+ 1
▪ Adopt different approaches to classroom organisation	69	66	- 3
▪ Connect and integrate curriculum (e.g. map curriculum to VELS, address more VELS domains, use integrated programs)	47	44	- 3
▪ Present content information in multiple ways	76	70	- 6



Once again, the positive outcomes reported by teachers in primary and special school settings are very clear. Their stated growth in capacity and improvement as teachers as a result of using the iPads to better engage students and develop learning programs to meet students' learning needs was not reflected in the secondary schools. Secondary teachers participating in the trial report that iPads had little or no significant impact on their teaching capacity or practice.

Choice of apps

The capacity of teachers to use the iPad to better meet students' personalised learning needs is illustrated through the enormous number of apps that are available for educational purposes. As reported in Appendix C, when teachers and students were asked to list their three favourite educational apps, 457 students managed to list 213 different apps, with 101 teachers including 125 different apps in their respective 'top 3'. This means that in this trial alone, involving ten schools over a period of one year, at least 213 different iPad apps were used by students for learning purposes. While there are groups of these that focus on skills areas such as mathematics, writing and reading, there are also numerous apps that students can choose from to organise their work, conduct research, communicate with one another and their teacher, and present their learnings. And the diversity in the list of favourites shows how far students have been able to go to select apps that they like and feel comfortable to use in their learning.

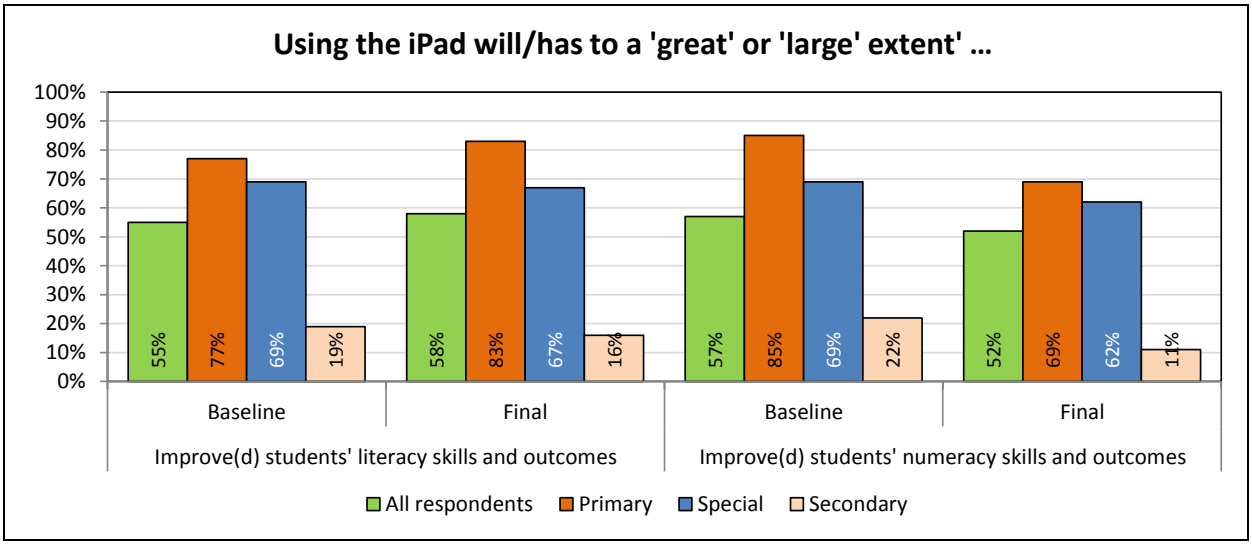
> *'Having access to so many different apps as well as the internet has extended our learning outside of the classroom into the community and the global world.'* (Primary teacher)

3.4. Improve student learning outcomes

'It helps me learn the timetables instead of looking at a timetable sheet. I can redo the quiz again.' (Student)

'It tells me how to spell by correcting my words if I get them wrong, and then I remember how to spell that word.' (Student)

There is clear evidence that students in the iPad trials improved their learning outcomes. Eighty three percent of teachers in primary schools and 67% of teachers in special schools reported improved literacy skills and outcomes for their students (to a 'great' or 'large' extent). These results were similar to those anticipated in the Term 1 baseline survey. However, the reported impact on literacy for secondary students was much lower with 16% of teachers reporting similar impact. Another 16% of secondary teachers reported 'a fair' impact on literacy skills and outcomes, 37% 'some' impact and 26% only 'a little' impact. Five percent said that there had been no impact at all.



Teachers' feedback on the impact of the use of iPads on students' numeracy skills and outcomes were a little lower than for literacy, but still very positive in primary and special schools. The final evaluation responses to these questions were a little lower than the results anticipated in the baseline survey.

The assessed impact on student learning was influenced by a number of factors, including:

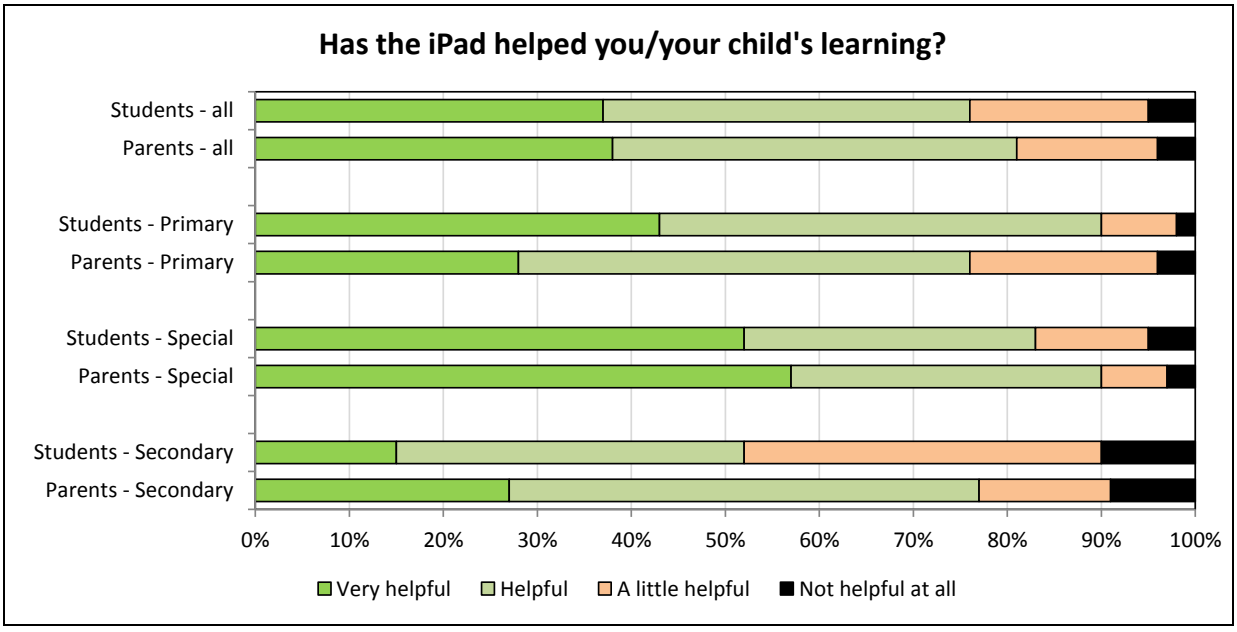
- the curriculum areas in which the iPads were used
- the scope for student improvement
- teachers' expectations of improvement in these areas.

For example, there was a clear focus on literacy and numeracy development in special schools, and an emphasis on literacy and numeracy in primary classes – either explicitly through selected learning apps or as part of integrated curriculum activities. It might therefore be expected that there be improvement in literacy and numeracy outcomes and that teachers would be looking for this to occur.

Primary *Reluctant writers*	Teachers have reported that reluctant writers are more inclined to write. 'They are writing more lines, on broader concepts, are practicing on the keyboard … they find it easier to do this than write by hand, which is another language to them.'

Primary *Assessment*	Students have used the SoundNote app to demonstrate their learning in Maths – short division. This app provides a blank workspace where the student can solve a set problem (showing their working step by step). They can then simultaneously voice-record themselves explaining the steps that they took to solve the problem. This is shared with their teacher or their peers to demonstrate their understanding of the topic, and can be stored in their eportfolio of assessment.
VCD Primary *Skill development*	Students in Grade 1 and 2 are pre-literate and many have low level communication skills. The teacher used the Shadow Puppets app to assist students to develop fine motor skills by copying the arrangement of the hands needed to make signing shadows. These fine motor skills are essential to the students' ability to begin learning Auslan, which relies on precise hand movements.
Primary *Sharing work*	Students who in the past have not wanted to get up in class and share their work now have more confidence to show off what they have learned. They feel good about the quality of work that they are producing using the iPad and want to have a go and have their say in class.

Both students and parents also thought that use of the iPads had been helpful in their own or their child's learning, with the overall responses from each group highly consistent. Thirty seven percent of students thought that the iPad had been 'very helpful' to their learning, 39% said it had been 'helpful' and only 5% said that the iPad had not helped at all.



As with all other responses, the feedback from primary and special schools was more positive than it was from secondary schools. In this case only 52% of secondary students thought that the iPad had helped their learning ('very helpful' or 'helpful'), compared with 83% of students from special schools and 90% of students from primary schools.

3.5. Extend learning beyond the classroom

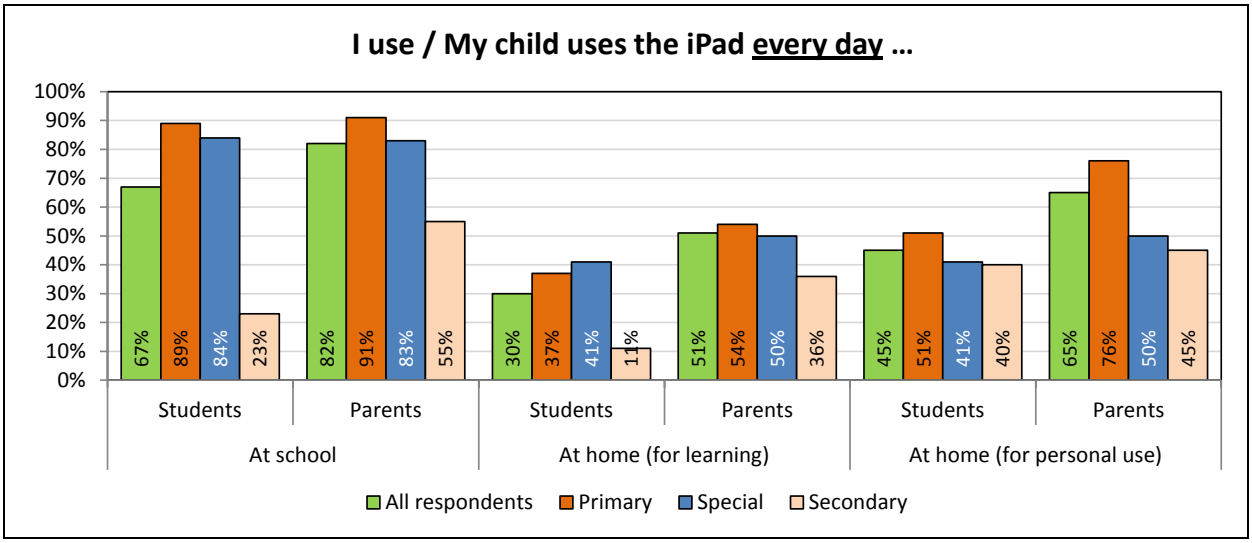
The extent to which the iPad has the capacity to extend students' learning beyond the classroom is determined by factors related to functionality and use.

As described in Section 2, the iPad as a device is not only easy to use (which encourages learning anywhere), it is portable and robust. It can be taken almost anywhere, has a long battery life, and stands up well to regular use. The iPad is also a device that offers immediate access to apps and the internet, so the desire to get an answer to a question can be quickly fulfilled without the need to be in a classroom or at a desk at home.

However, functionally facilitating learning beyond the classroom would mean nothing if the iPad were not also a device that students like to use for learning. As noted in Section 3.2 the iPad has the capacity to increase student motivation and engagement with learning, and student and parent feedback to the evaluation confirms that students love to use the iPad to play games.

All of which suggests that the iPad is capable of extending learning beyond the classroom, and 73% of teachers reported in the final evaluation survey that they thought the iPad had to a 'great' or 'large' extent extended student learning beyond the classroom.

When asked where and how often they used the iPad, 67% of students said that they used the iPad every day for learning at school (or at the hospital for those children at RCH Education Institute). Thirty percent said that they used the iPad every day for learning at home, with another 32% using it at home every few days, and a total of 73% using the iPad for learning at home at least once a week. Most often (as also noted by parents) this use was associated with completing homework tasks, but in some cases was independent self-initiated learning where the child was doing their own learning in their own time because they could and they wanted to and the iPad made learning fun. Home use of the iPad for learning was much greater for students from primary and special schools (around 40% every day) than it was for secondary students (11% every day).



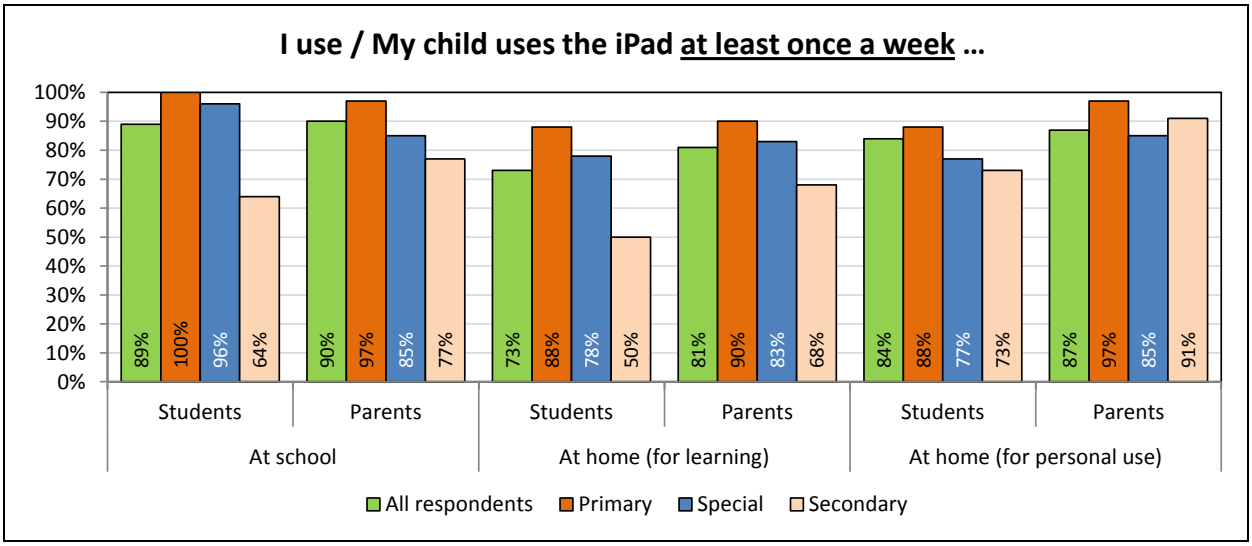
'At school I use it for learning. At home I use it for homework and games.' (Student)

'I use it for games that also teach me maths and school subjects.' (Student)

'I use the iPad at home differently from school, because I can look up anything I want on the internet and go on any app at any time.' (Student)

'I play games, look up information, listen to music, watch YouTube videos and write stories at home.' (Student)

'I play games and listen to music an sing along wif it and then I do homework.' (Student)



Forty five percent of students also said that they used the iPad every day to home for personal use (mostly playing games, listening to music, searching the internet, watching YouTube, using Facebook), with a further 35% using the iPad for personal use at least once a week. Interestingly, parents perceived a greater use of the iPad in all settings (at school and at home, for learning or for personal use) then their children self-reported.

Effective use of the iPad can also extend the classroom beyond its four walls (or open learning space) and even beyond the school gate. For example, a student at a primary school in the trial has an illness that requires them to spend periods of time at the Royal Children's Hospital. The student has been able to maintain contact with their peers and their learning at school via Skype (using the video camera on an iPad2 his parents purchased for him, having seen the value of the iPad through the trial at the school). Doctors have commented to the parents that this connectedness with friends and school enabled through the iPad has been beneficial in the child's overall state of mind, rehabilitation and recovery.

Primary *Mr Jolly*	A Grade 6 student used her iPad and the app Doodle Buddy to create a new logo for her aunt's gingerbread house business. The new mascot – Mr Jolly – is now featured on the business's website, as well as business cards, stickers and coffee mugs.
Primary *Royal wedding*	A student watched the wedding of Prince William and Kate Middleton with her family and became intrigued by bloodlines. She immediately started investigating the topic with the iPad giving her fast access to lots of information. She used the note taking capabilities of the iPad to record her impressions of the wedding while linking it to the history of the British Royal family. She shared her research with her classmates the following day.

3.6. Improve parental engagement in learning

'The iPad has provided the information required at her fingertips, creating a greater desire to learn.' (Parent)

Ninety one percent of teachers responding to the final evaluation survey indicated that through the iPad trial there had been at least 'a little' increase in parental engagement in their child's learning. The response was strongest among teachers in special schools where 36% thought that the increase had

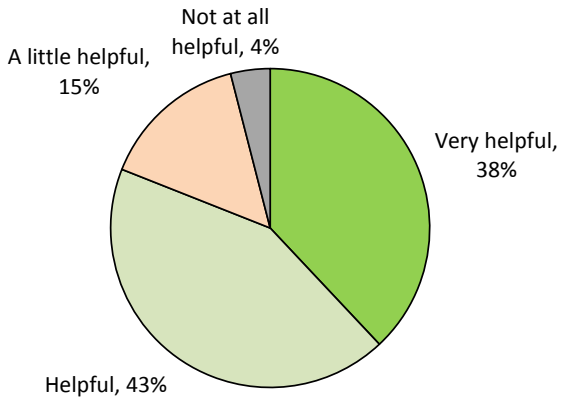
been 'great' or 'large' (vs 12% in secondary and 8% in primary schools). Sixty nine percent of teachers in primary schools thought that there had been a 'fair' increase in parental engagement.

The survey feedback from parents was overwhelmingly positive – firstly about the ease of maintenance of the iPad, and secondly about its impact on learning. Ninety eight percent of parents said that it had been easy to help their child keep the iPad charged and ready to use, and 85% thought that it had been easy to help their child manage the iPad (e.g. keeping the device synced and up to date).

Parents were aware of many different ways in which their child had used the iPad for learning at school or at home. More than one third had observed their child using the iPad to do homework, completing set tasks, undertaking research or preparing movies, keynotes or written presentations. More than half had also seen their children playing games on the iPad.

When asked about the impact of the iPad on learning 90% of parents said that the iPad had made their child's learning more fun, more interesting and more exciting. Thirty eight percent said the iPad had been 'very helpful' for their child's learning, 43% said 'helpful', and only 4% said the iPad had not helped their child's learning.

Parents' views on whether the iPad helped their child's learning



'My child has access to more information and can create and display her thinking and creativity in a way that is impossible with the use of traditional methods.' (Parent)

'Immediate interactive engagement and response to the many what ifs and how tos.' (Parent)

'Writing on social media improved her writing.' (Parent)

'I think it has helped my child learn because the educational games are fun and addictive.' (Parent)

'Technology is essential for learning and job prospects in later years.' (Parent)

4. THE VALUE ADD

DEECD's iPad trial has shown that effective use of an iPad can increase independent and self-initiated learning among students, and it can increase student motivation and active engagement in learning. It can build teacher capacity and improve student learning outcomes. The iPads in the trial have been used to do all of these things and more.

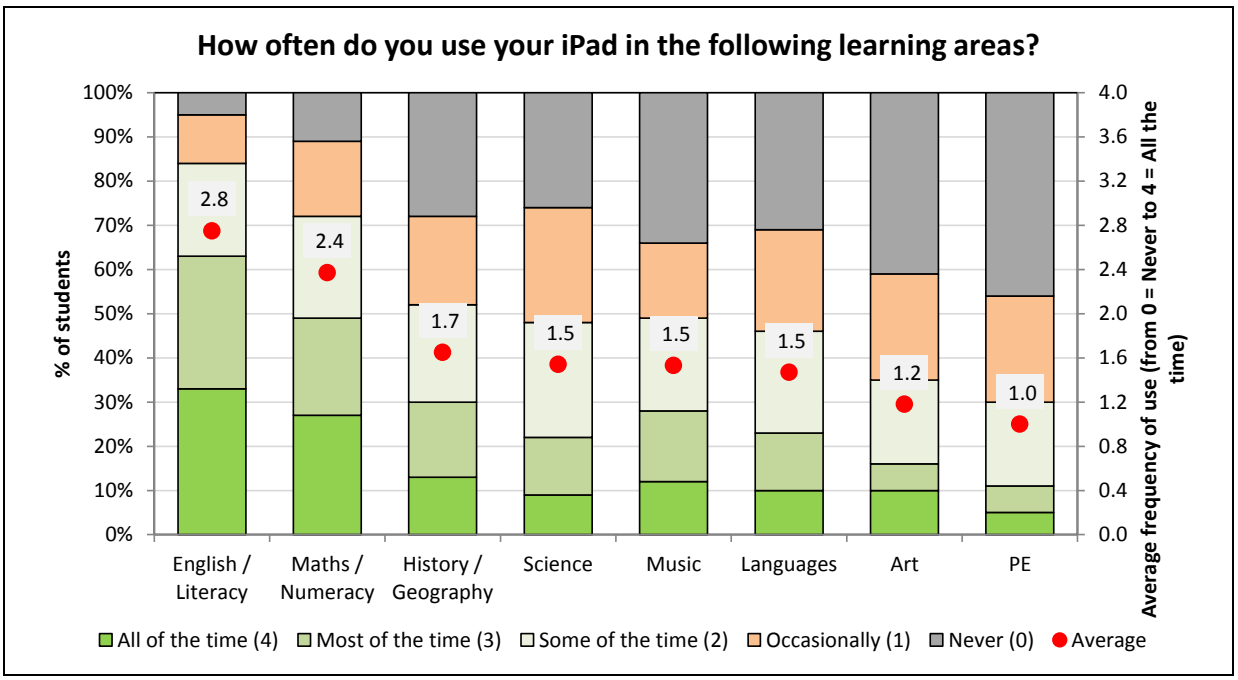
And in doing this the iPad has shown itself to be a device that can, relative to 'similar' technologies such as netbooks and laptops, add particular value to learning in certain contexts.

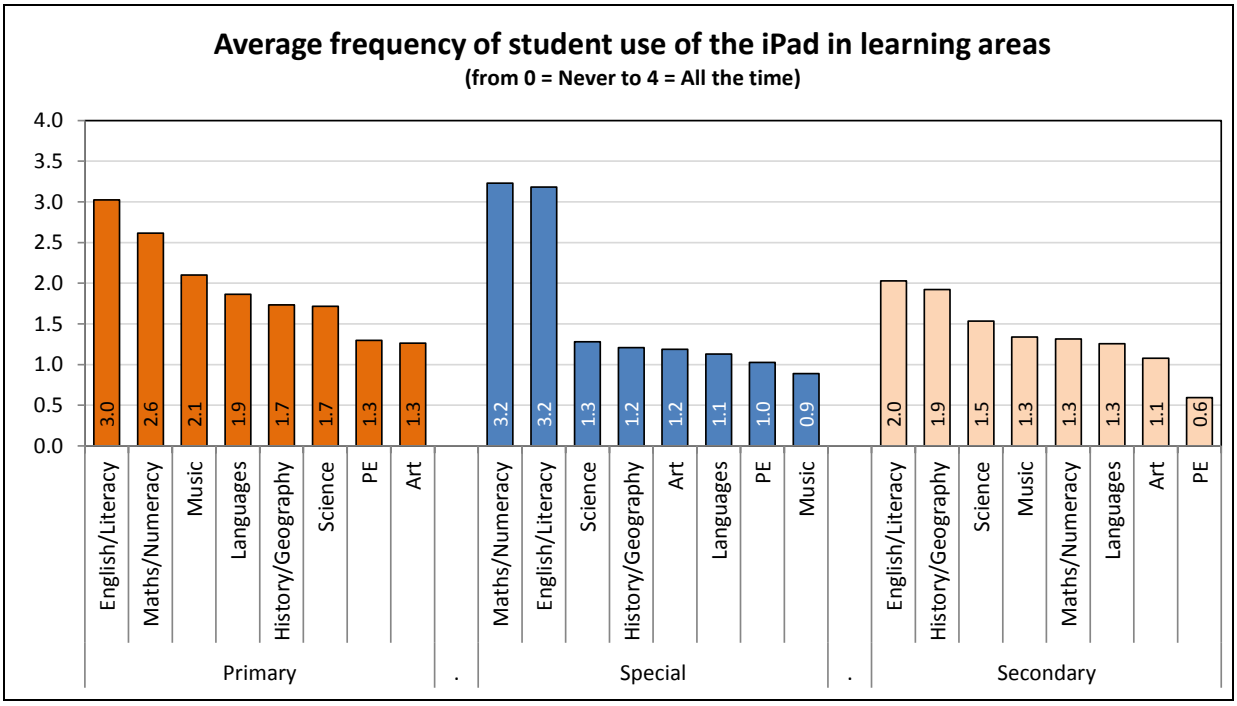
4.1. Anything anytime anywhere

The iPad is an anything anytime anywhere device. It has not been designed specifically for education purposes, but can clearly be used for this. It has not been designed primarily for communication purposes, but it can facilitate one-to-one and one-to-many communication in lots of different ways. It is not purely a recreational device, but it can be used to play games and listen to music and watch videos. Users can access the internet, upload photos, and use the iPad as a word processor.

The whole iPad package combines a device that is lightweight, portable, robust and (in battery-life) long-lasting, with specific and general purpose functionality that is as wide and varied as the creative minds of app developers all over the world. And it is ready to go at the press of a button and up to date every time it is synced.

The schools, teachers and students in the iPad trial that got the most out of the trial in terms of improved capacity to meet learners' needs and engagement in learning were those that used the iPad for anything anytime anywhere. More than a third of the teachers responding to the final evaluation survey, mainly those in primary and special schools, said that they used the iPad in all curriculum areas. The remainder mentioned a mix of curriculum applications that covered literacy, numeracy, humanities, science, languages, art, music and ICT. Students experienced use of the iPad in all of these curriculum areas with frequency dependent on the dictate of their teacher (except of course for extra-curricular use of the iPad for learning which was of the students' choice).





Eighty six percent of teachers, again mainly those in primary and special schools, said that they used the iPad for school-directed learning every day. And 97% of all teachers in the trial said that they used it for learning at least every few days. Students from all schools reported highest frequency of use of the iPad in English/literacy learning. Students from special schools also experienced frequent use of the iPad in maths/numeracy learning (60% everyday use), especially when compared with secondary students, while primary students had relatively higher use of the iPad in music and languages.

The iPad was used for specific skill development, research, inquiry learning, collaborative learning and presentation purposes. The students in the iPad trial were concentrated in Years 5 to 8, but through the special schools included students of lower primary age all the way up to VCE and VCAL students.

The point is, the iPad is a powerful tool in the teaching and learning toolkit that can enhance learning in just about any learning context.

Examples of the current use of iPads in trial schools highlight how a single device providing access to thousands of apps can be used by many different types of students, with different capabilities and learning needs, in different settings, in different curriculum areas, on a variety of learning tasks (e.g. skill development, problem solving, inquiry, reading, research, assessment).

Primary *Canberra camp*	The school took a group of special needs students to Canberra for a camp. Students were able to take their iPad with a wifi dongle purchased by the school, which enabled them to access the internet while out and about. This meant that students could look up information about where they were and where they were going next, which added to their learning experience. Students kept logs about what they learned and built on the experience when they returned to school. Students were also able to email their parents, which kept parents informed about their child's activities and eased concerns about their being away from home.

Primary *Multiliteracies*	Teams of students participated in the Jump Rope for Heart challenge to raise money for the Heart Foundation. On the day students recorded themselves using iPods and Flip Cameras, and then developed Keynote presentations of their fundraising events embedding the videos into their presentation.
Primary *Research and collaboration*	Students participated in a Challenge Based Learning Project focused on helping a community to recover from a natural disaster. Students used their iPads to investigate a range of natural disasters and find out how a community is affected by a natural disaster. Students used apps of their choice to demonstrate their learning (e.g. ComicLife, Strip Designer, Reel Director). Communication and collaboration between the students was further enhanced by the use of email and online social networking sites such as Edmodo and Posterous.
Primary *Critical thinking*	Students have a dedicated class on a Friday afternoon called AppReview. During this time the students can access apps from the iTunes store and are tasked with developing a review of the app. This requires the students to select an app, 'play' with the app and then produce a written review of the app. The review focuses on cost, size, purpose, pros/cons and why this would be a good app to have. Teachers report that this activity requires the students to critically evaluate an app and present their findings in a clear and concise way, and is encouraging thinking skills and increasing literacy. The best reviews are printed and placed on an '*App*le tree' in the classrooms.

4.2. Meeting special needs

In addition to its anytime all-purpose functionality, the iPad has been shown through the trial to be a device that is of particular value to students with special learning needs. Throughout the trial, teachers of students with special learning needs were relatively more optimistic about the extent to which using iPads would enhance student engagement in learning. In the final evaluation survey 90% of teachers from special schools said that to a 'great' or 'large' extent the use of the iPad had increased student motivation and engagement.

For students with special needs the use of iPads is not just a fun device, it is (particularly because of the interactivity and functionality of the touch screen interface) giving them access to learning opportunities that did not previously exist.

- Students with **visual problems** can use the pinch-in pinch-out sizing functionality to better see what is on the screen.
- Students with **physical disabilities or poor fine or gross motor skills** find it easier to use the interactive touch device and keyboard than traditional devices/keyboards.
- Students with **attention deficit** disorders are more engaged with the interactive device and range of apps to suit their learning needs.
- The flat iPad screen means that **deaf students** don't have to look over or around a desktop computer screen to see the teacher signing at the front of the classroom, or be seen when signing back to the teacher.

  'I am now able to offer more appropriate learning opportunities for students who are unable to access other ways of learning (e.g. students who cannot use pencils or paper for various reasons).' (Teacher)

  'Students who are non-verbal can join in activities suited to their level of abilities.' (Teacher)

'Using the iPad is an accessible way for my students with physical disabilities to access technology to assist them in communication goals, as well as numeracy and literacy skills.' (Teacher)

And the changes are so profound that parents are taking direct action to enable their children to better access these opportunities. For example, staff at one specialist school commented that parents appear to have become much more interested in their children's learning since the iPads were introduced. The students are more engaged with learning, progressing faster, talking about things at home, and parents are taking notice. In this and some of the other special school settings the students in the trial have not been allowed to take the iPads home. With what they have seen happening at school parents are filling the gap, such that three of five parents from one class have purchased an iPad and apps so that their child can continue to access learning and information away from school. The parents have communicated with their child's teacher about how they can assist their child's learning at home, an occurrence not common at the school.

Students at VCD have been using the Auslan app in two specific ways. They use it like a dictionary, where they can see the word visually with the signing, but can also see it written, allowing them to connect written words with sign language. Students are also using the app to communicate with their families. A large proportion of families with deaf students do not know how to sign and the Auslan app allow the student to share their language with their family and the hearing community.

'Because they don't speak English reading is really hard. But accessing information (through the iPad) allows them to learn from images. A picture paints a thousand words.' (VCD teacher)

Other examples of the use of iPads illustrate the device's capacity to support learning outcomes for students with special needs.

Autistic students *Organisation*	Students used the Calendar app to organise (and manage) their day in a sequential pattern. This has been particularly important for autistic students where structure and pattern are essential components of their lives.
Special needs students *Communication*	Students used Proloquo2Go, an app that allows them to personalise their iPad and communicate with teachers. One student, who until the introduction of the iPad had not been known to seek teacher assistance, used the iPad to ask for help – a major breakthrough in the eyes of the staff and the child's parents.
Rehabilitation Ward *Recovery*	One student with a brain injury and loss of memory used the iPad to help them remember the things that they loved in the past. This student was very interested in astrology prior to their accident and used the StarWalk app to remind them of the signs of the Zodiac and create a Keynote that captured this information for future reference. Teaching staff on the ward used the iPad as a non-threatening diagnostic tool to assess this student's post-accident learning level.
Special needs students *Literacy*	A student used a spelling app which provides him with a picture and the letters of the word in a jumble. The student has to drag each letter down to correctly match the letters with the word shown below. This child had previously not been able to do a similar paper-based activity.

5. MAKING IT WORK

The iPad trial has demonstrated that the use of iPads can build teacher and student capacity, and improve teaching and learning outcomes. But these results did not occur because of the iPad. The iPad is a device, a tool in the teaching and learning toolkit. The positive outcomes of the iPad trial, where they existed, were the product of a number of interrelated factors which combined to take advantage of the functionality and capabilities of the iPad.

Any school wanting to invest in iPads as an effective enabling technology should seek to maximise the presence and alignment of the following four factors which will enable, facilitate and support their effective use in and beyond the classroom:

- quality teaching
- leadership support
- technical support
- parental support.

5.1. Quality teaching

Through evaluation visits to schools to observe the way students were using the iPads in class to enhance their learning, and discuss with teachers how they were choosing to incorporate use of the iPad into their teaching, it is evident that the single most important factor in the impact of the iPad trial on student engagement and learning has been the nature of the teaching. The iPad is just a device, but it is the quality of the teaching that matters.

> *'iDevice does not replace good teaching. You still need to develop and present the lesson, but then allow the students to explore the way they want to complete their work.'* (Teacher)

> *'We need to use apps to create, not just do the same things we would have done on a different device.'* (Teacher)

> *'With the iPad, technology becomes transparent and we can focus on the learning.'* (Teacher)

When asked in the final evaluation survey to describe the three most important things they had focused on in using the iPads to improve student learning, the following responses from teachers give some indication as to what learning may have been like for students in these classes (in terms of both the use and non-use of the iPads).

- Create a class where the kids are not waiting to be taught.
- They have the internet at their fingertips, which has been brilliant when they need to research or they want to know the answer to something that I as a teacher am not sure of.
- Allowing the children to explore their own ways to use the iPad and complete tasks, rather than always telling them what app/apps to use.
- Accessing YouTube.
- Look, to be honest I do not find the iPad useful for teaching mathematics. There are already excellent resources out there which I cannot access as the iPad doesn't let you use Java.

The classrooms where students enthusiastically came out to share what they had learned and how they used the iPad were ones where the teacher had created an environment of inquiry, where students of all ages and abilities were given some responsibility for actively participating in how they learned.

One primary teacher talked about their approach to teaching, which involves planning and developing learning tasks without specifically dictating how students can undertake the learning. This choice is left to the students to use whatever learning aids and tools are available to them and that they feel most comfortable in using. The available tools may or may not include the iPad – but often do. The tools students use may or may not include the iPad – but often do. And the children are engaged in learning and happy to share their learning.

The evaluation has found that there are many ways in which iPads can be used to do different things. What is important is that this use be part of a meaningful and engaging learning task. The evaluation survey showed that some teachers found great possibilities for the iPads to support their pedagogy, and cater to individual student's learning needs and develop high level engagement tasks. Around three quarters of respondents thought that the iPads would give their students greater flexibility in the way they were able to approach, undertake and demonstrate their learning. These outcomes cannot occur simply through the nature of the device. They have to be enabled by the teacher.

And the evaluation indicates that where teaching practice is not being adapted to incorporate the new tool in the toolbox, the impact on students is less likely to occur.

Teacher capacity

One reported constraint on the early implementation of the iPad trial in a couple of schools was concern among teachers that they (and their students) needed professional learning on how to use the iPad. With quality of teaching a key factor in the use of the iPads these concerns are reasonable where they relate to teachers being confident and comfortable in their pedagogical capacity to use the iPads effectively. The concerns have less validity where they suggest teachers and students need training on how to operate what is clearly an intuitive and easy to use device.

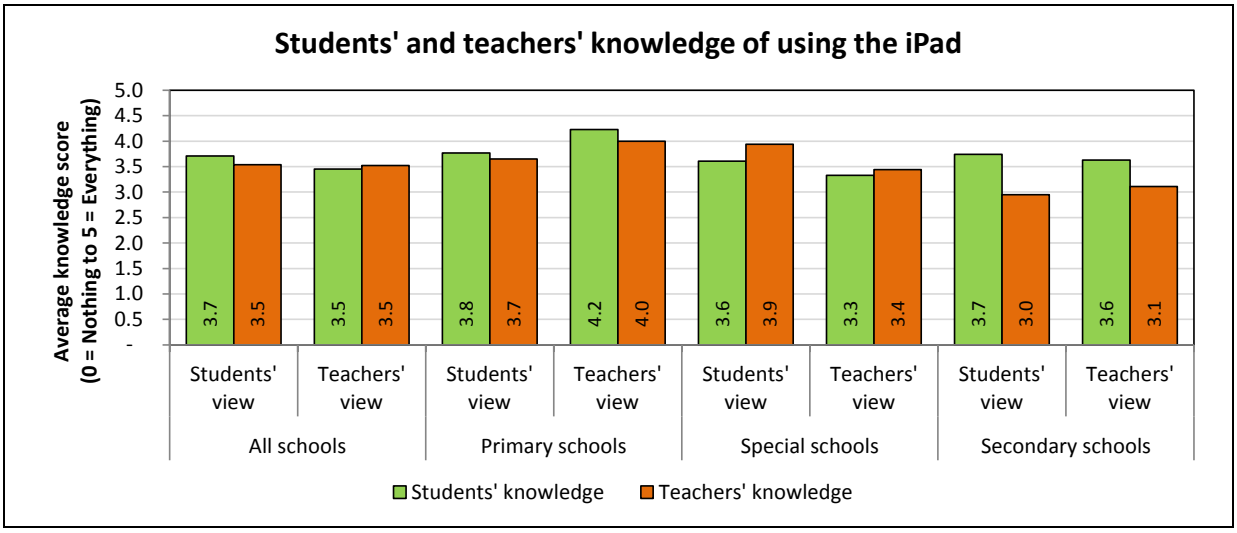
> *'Our biggest issue is that our staff are unconsciously technically illiterate. They need to see the device in action in the classroom.'* (Principal)

Both teachers and students were asked in the final evaluation survey what they (and the other) knew about using the iPad. The results present an interesting perspective on perceptions of teacher capacity. Overall, students rated their knowledge of using the iPad (3.7 on a 5-point scale) as being slightly higher than their rating of what their teachers' know about using the iPad (3.5). Overall, teachers thought knowledge about the use of the iPad was balanced.

This result was largely repeated in primary schools, where students rated themselves as slightly ahead of their teachers, and teachers rated the two groups as close, with students slightly ahead. In special schools the expertise in using the iPad was thought to rest more with the teachers than with the students, especially from the students' perspective. In secondary schools there was no balance. Both students and teachers believe that students have a clearly greater level of knowledge about using the iPad.

A question arising from these findings is 'Does this matter?' Does it matter if students are more skilled and confident in using a technology than their teachers? When asked directly in interviews, teachers answer 'No'. What matters is that the teacher controls the teaching and learning tasks, understands how students work to complete the task, and is responsible for overall assessment. Whether or not the teacher is an expert user of the iPad or any particular app is irrelevant.

> *'My job as the teacher is to set an effective interesting learning task and be clear about what I am assessing. I don't need to be the expert.'* (Teacher)



5.2. Leadership support

The second key enabling factor in the effective use of iPads is leadership support and understanding. The involvement of school principals and/or other school leaders in the iPad trial varied significantly.

Of particular note was that the trials at around half of the trial schools had a staff member in a leadership role who was responsible for the iPad trial – and that this person was a competent and confident user of technology. And the combination of top level authority and support for the iPad trial, coupled with practical understanding of the iPad and its potential application in the classroom contributed to the success of the trial in these schools.

Strategic alignment

Schools' initial approaches to implementation of the iPad field trial, the actual roll out and their stated intentions for the future use of iPads demonstrate the extent to which participation in the trial was part of a strategic assessment of the potential use of iPads in learning. Some schools went into this trial with a very clear intent on what they wanted to know about the use of iPads. Others just handed out iPads to students. In these schools the iPad trial was an 'add on' to the way they choose to work, and teachers and ICT support staff see the iPads as 'something else they have to do', rather than 'enhancing what we already do'.

Those schools that made a conscious strategic decision to explore investment in iPads as an integral part of their approach to teaching and learning have thought and continue to think clearly about where they used and might in the future use iPads – at which year level, with which student cohorts, in which curriculum areas and in what way. For these schools and their leaders, there has been a purpose to the trial that allowed it to generate and maintain momentum and retain leadership interest and commitment.

For example, prior to the iPad trial one school had already decided to go digital in a big way, and the opportunity to participate in the trial complemented their strategic direction. The school had already invested heavily in ICT and iPads were seen as another component in that investment. With that grounding, the iPad trial was simply incorporated into and broadened an existing pedagogical approach and ICT-accepting infrastructure.

Some schools committed their own financial resources to support and enhance the trial, which resulted in better outcomes in terms of their learning about the iPads, their uptake, increased teacher competence and confidence, and student engagement.

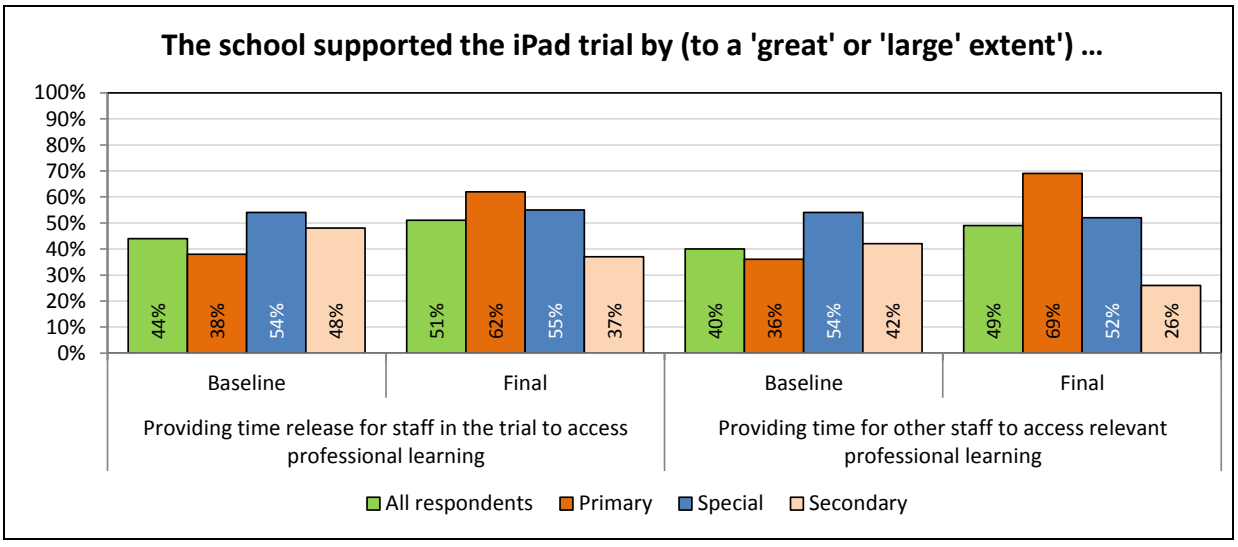
Professional learning

The level of leadership support that existed in the trial schools can be gauged by the commitment to providing teachers with access to professional learning to enhance the use of the iPads – time to play, share and learn from each other. This was not professional learning to work out how to use the iPad – as stated, the device is intuitive and easy to use. The bigger issue (as has been noted in other technology trials conducted by DEECD[5]) is that teachers needed time to work out how to use the device pedagogically, as an effective teaching and learning tool.

Many teachers found that they did not have time within the demands of the school day to explore the potential of the iPad. For those who are ICT-inclined this was a task they took on with relish at their leisure. Other interested teachers chose pro-actively to do this exploratory work in their own time.

In some schools the principal made time available (e.g. through use of the $5,000 trial grant) or by freeing up one or more staff to concentrate on investigating the pedagogical application of the iPad and sharing their findings with other staff. For example, one trial school built in sharing time within their regular staff meetings to talk about the ways the iPads were being used and provide examples of the impact on students. In others teachers were left to their own devices and 'muddled through' intermittently spending time on understanding the use of the iPad and picking up tips from peers who were doing the same thing.

Given the findings discussed throughout this report it is interesting to note that teachers in primary schools found that between the baseline survey in Term 1 and the final evaluation survey in Term 4 were significantly more optimistic about the level of support provided by their school for professional learning – being professional learning of both staff involved in the trial and other teachers.



Teachers in special schools initially had the highest levels of expectation about the professional learning support their school would provide (54% thought that to a 'great' or 'large' extent they would be supported by their school). In practice, these expectations were realised. However, secondary school teachers involved in the trial had the opposite experience. From the baseline to the final evaluation survey the proportion of secondary teachers who thought that they had been well supported by their school in accessing professional learning fell significantly. With the reported differential in teaching practice and student engagement with the iPads in secondary schools, there is cause to think that additional pedagogically-focused professional learning support might have been a valuable thing.

[5] *Teaching and Learning with Web 2.0 technologies*, Findings from 2006 – 2009, DEECD March 2010.

5.3. Technical support

In the baseline evaluation survey, conducted in Term 1 following the initial set up and implementation of the iPad trial, 84% of teachers indicated that there was sufficient technical support available at their school to assist with the implementation of the iPad trial. However, the results varied by school type, with 92% of primary respondents and 94% of special school respondents satisfied with the level of technical support compared with 62% in secondary schools.

At the end of the trial the figure had increased marginally to 88%, with positive responses from 92% of respondents from primary schools, 89% of teachers in special schools and 79% of teachers in secondary schools. The provision of technical support for the iPad trial was one area where there was a significantly improved outcome for secondary schools over the course of the trial.

Prior to the commencement of the iPad trial at least two schools had already employed technical staff with relevant expertise to support their iPad capability. More than just a few hours a week, technical support staff were onsite and able to provide immediate support to teachers as required, for example:

- to facilitate iPad maintenance (e.g. charging, synching, storage)
- to support teacher use of the device
- to research and identify potential apps for use in targeted areas (e.g. maths applications for deaf students).

Conversely, the RCH Education Institute does not have technical support for students on site (i.e. on the hospital ward), and internet access is not universally available (e.g. the hospital's proxy server has limited IP addresses for non-medical and administrative use).

Where teachers reported that additional technical support for the use of iPads was needed (bearing in mind that 88% of teachers thought that there was sufficient technical support), two requirements were noted. The first was for more frequent or more regular access to technical support. In some cases the concern was reflecting a general lack of access to technical support in the school, and for a very small number of teachers a feeling that their ICT team 'were not very familiar with iPads' and 'could or would not assist at times'. The second type of 'unfulfilled' technical support that was sought by teachers was the need for expertise in troubleshooting issues that arose, some of which were related to the iPad and others which related to the school's enabling ICT infrastructure (e.g. connectivity, network, access to wifi, support with specific applications, VGA connections to projectors).

An evaluation survey of technical support staff in participating schools in Term 3 2011 found that the main issues that had to be addressed during the initial set up of the iPad trial related to access to the internet (including wireless internet), the school's network, proxy servers and iTunes (which had been blocked in one school). Some schools were not set up for students having 1:1 access to devices and this put demands on the schools' network and bandwidth capacity (e.g. wireless saturation when 100 students simultaneously seek access to the internet). This remains one of the most significant barriers to a 1:1 ICT roll out across the school system. Having large numbers of students online at any given time on a system that was not designed for such high usage can result in frequent drop outs and low internet speed.

Technical support staff indicated that if the trial were to be done again they would ask for more time up front to:

- ensure the school's ICT infrastructure could handle the number of iPads that were being purchased
- establish protocols for iPad set-up, maintenance, syncing and charging (where this was not going to be the responsibility of individual students and/or staff)
- train users in syncing and updating the iPad and apps (not that this was of itself a complex task, but that for some users there was a perception of difficulty and a significant time commitment to device maintenance – based on previous ICT experience with other technologies).

However, as noted in Section 2, once the trial got going technical support staff in the trial schools were generally of the view that iPads had a lower demand for ICT support than other learning devices (e.g. Netbooks). Respondents commented that the iPad being an easy to use self-managed device meant that both teachers and students (or their parents) were able to deal with most technical issues that arose.

In two schools, for example, the demand for support from the school's ICT team was further diminished by the identification of students with expertise in use of the iPads who could act as a first line of support for fellow students (and teachers where necessary). For example, one primary school has Junior Geniuses (complete with T-shirt) and a secondary school has iPad Lead Users (who have a 'license' and list of responsibilities displayed in classrooms).

The lesson for other schools from this experience is that once set up iPads are a relatively low support device, but that there is a need for investment in technical support prior to and during the introduction of iPads to ensure that their use can be seamlessly integrated into the school's ICT infrastructure.

In particular, it should be understood that limited home access to the internet can be a barrier to use of the iPad beyond the classroom, the capacity of the student to maintain the device (e.g. sync at school), and the student's ability to maintain communication with their teacher (e.g. access broadcast messages in a timely way). This was an issue of concern in rural and low socio-economic areas.

5.4. Parental support

School leaders and teachers involved in the trial talked about the importance of parental support and the home environment in facilitating student motivation and effective learning outcomes. This is a fundamental principle of successful schooling regardless of whether students are participating in a technology trial.

And when the iPad trial commenced schools, to varying degrees, made deliberate efforts to promote the trial to students and parents, to set expectations about the use, maintenance and care of the iPads, and to explain the implications of the trial on student learning.

In some cases parental support for the trial and for their child's learning was freely and enthusiastically given, as evidenced through:

- parents helping students to charge and sync their iPad on a regular basis so that it was ready for learning at any time
- parents taking an active interest in what their child was doing on the iPad, including homework, self-initiated learning and personal recreational use
- parents using the iPad themselves to build their familiarity with its use and potential
- parents monitoring appropriate use of the internet and apps accessed through the iPad
- parents purchasing iPads for additional home use.

As reported previously, there are some moving examples of parents of children with special needs being thrilled with the changes that they have seen in their child's engagement with learning, which has reinforced their support for the trial and the school's use of the iPad in learning. Parents of children at the Royal Children's Hospital expressed their belief that their seriously ill children have benefited from using the iPad, distracting them from the everyday events at the hospital – doctors' appointments, surgery, procedures and treatment.

> *'It gives her a something to do and concentrate on stuff other than being sick.'* (Parent)

At the same time there are some examples where parents have been indifferent, dismissive or against the use of the iPad in learning.

> *'I don't like that you have given my child a device capable of all sorts of things that the parents then have to police. It's like you giving my son a gun and then telling me it's my responsibility to make sure he doesn't shoot anyone.'*
>
> *'The fact that it seems to have replaced the good old pen and paper … penmanship has gone right out the door.'*
>
> *'It has taken over old fashioned schooling of writing and worksheets. The kids need more of a balance, especially boys who could do with more fine motor skill practise.'*
>
> *'It is difficult to police the personal use at home. It can be a battle to keep him off it.'*
>
> *'iPads should be treated like other electronic devices, such as computers, where they have one class per week.'*

These cases can generally be linked to a lack of understanding of contemporary teaching practices and the mutually reinforcing roles and responsibilities of teachers, students and parents in student learning.

From their experience in the iPad trial participating schools would recommend to others that, to the extent possible, schools should endeavour to build widespread parental support for and understanding of the use of technology as an ongoing part of any technology-enabled learning program.

6. CONCLUSIONS

Yes – it works

DEECD's 2011 *iPads for Learning – In Their Hands* trial placed around 650 iPads in ten primary, secondary and special schools. The trial has investigated the capacity of iPads to …

- increase independent and self-initiated learning among students
- increase student motivation and active engagement in learning
- improve teachers' capacity to plan for and meet individual student needs
- improve student learning outcomes
- extend students' learning beyond the classroom
- improve parental engagement in learning and strengthen home-school links

… and found that effective use of iPads can lead to all of these outcomes.

> *'With the students fully engaged in the task using the iPad all work requests are completed with joy.'* (Teacher)

The iPad is easy to use, portable and robust, with long battery life. The touch-interactive flat screen tablet with pinch in/pinch out functionality enhances access to learning opportunities for students with special needs, visual disabilities and poor fine and gross motor skills. Immediate start-up and high speed access to apps and the internet make the iPad a device that can be used for learning (and communication and music and games) anytime anywhere.

But all of this is of limited educational value if the teacher does not allow a student to extract all of the benefits and potential from the device. For the iPad is just a device, a device that has uses and an audience and a commercial existence independent of its educational application. And in schools the iPad is just a device, another tool in the teaching and learning toolkit – like a pencil, or a calculator or a Netbook.

The iPad trial has seen evidence of fantastic learning, students motivated to learn like never before. Students taking control of how they learn and what they do to show that they have learned. Students wanting to learn wherever they are – in school and at home – and involving their family in that learning experience. There are inspiring examples of effective student learning outcomes, especially for students with special needs.

But this did not occur in every school or class in the trial. In some classes the impact of using the iPads on teaching and learning was much greater than others. The determining factor that influenced the iPad's effectiveness in contributing to improved student motivation, engagement and learning and meeting the specific learning needs of students, was the quality of teaching that defined when and how the tool was used.

It was not having an iPad lesson. It was doing a curriculum-based learning activity using the iPad as a tool. It was not saying 'today we will use the iPads'. It was saying to students that they could complete their learning task using the tools they preferred. It was not going to the computer lab for a class. It was having information at students' and teachers' fingertips whenever there was learning to be had. It was deliberate and purposeful and creative and disciplined teaching, teaching that embraced the possibilities offered by the iPad and the thousands of apps that might be used to enhance student learning.

The iPad is a powerful and highly valuable tool in the toolkit if the teacher allows it.

'The ease of use, the auditory, visual and kinesthetic aspect means they are a great tool for all students. Teachers still play a key role in developing a curriculum that can maximise these opportunities.' (Teacher)

It works best if …

Feedback from teachers and school leaders involved in the iPad trial indicates that in addition to the fundamental requirement for the teacher to optimise the use of the iPad, the iPad can be more successfully implemented in a school if it is accompanied by:

- leadership support
- technical support
- parental support.

School leaders influenced the outcomes of the trial in two ways. The first was through their positioning (or not) of the iPad trial as a strategic endeavour and an integral part of the school's plan for improving student learning outcomes. Some principals had this strategic intent, and directly or through appointing a senior staff member to oversee the trial gave the iPad trial legitimacy and authority. The second area of influence was in provision of access to pedagogically-focused professional learning – for teachers involved in the trial and for other teachers to be able to take in what was being learned by their peers.

Technical support staff in schools report that there was a significant commitment of effort to get the iPads set up in each school – purchased, synced and set up with apps, networked, registered and distributed to students. But once the trial got going the technical staff indicate that the iPad as a device has relatively low support needs. Where there were issues to address these related to the impact and volume of iPad use – notably saturation of the school's network and resultant drop outs and slow internet speeds. Addressing potential ICT infrastructure requirements is the key technical support issue.

The iPad trial was a 1:1 trial, and in nearly all students were able to take their iPad home. More than other uses of technology in learning this put the issue of parental support for and engagement in learning at the heart of this trial. Parents were aware of the need for the iPad to be synced and charged, with apps bought and updated. Parents were aware of their child using the iPad at home – for homework, for independent learning and for fun. Parents could, if they took an interest and their child acquiesced, take a direct interest in what their child was learning. In some cases the use of the iPad has been a bridge between school and home, especially for some students with special needs. Some parents have seen what their child is capable of when given an opportunity to shine, and have supported their child's continued use of the iPad.

Primary and Special schools vs Secondary schools

However, the experience of DEECD's iPad trial and an ever-present thread throughout the evaluation has been the different levels of uptake and impact of the iPads in secondary schools in the trial relative to the primary and special schools. Against just about every question in the baseline and final evaluation surveys there was a significant differential between the result in the secondary schools and the other schools in the trial, as shown in the following examples.

Evaluation survey question	Primary	Special	Secondary
▪ I use the iPad at school … 'Every day'	89%	84%	23%
▪ Using the iPad has encouraged students to take greater ownership of their learning … 'To a great or large extent' (Teacher response)	85%	79%	22%

Evaluation survey question	Primary	Special	Secondary
▪ Using the iPad improved students' literacy skills and outcomes … 'To a great or large extent' (Teacher response)	83%	67%	16%
▪ Using the iPad improved students' numeracy skills and outcomes … 'To a great or large extent' (Teacher response)	69%	62%	11%
▪ Using the iPad has increased my effectiveness as a teacher … 'To a great or large extent'	84%	76%	22%
▪ Using the iPad has increased my effectiveness in using ICT to improve teaching and learning … 'To a great or large extent'	92%	84%	35%
▪ My teacher likes to use the iPad … 'Yes – absolutely'	75%	76%	25%
▪ The school supported the trial by providing time release for professional learning for staff in the trial … 'To a great or large extent' (Teacher response)	62%	55%	37%

The question arises, is this just a feature of the particular schools in the iPad trial, or is it symptomatic of a real difference in the potential of primary and secondary schools to effectively use the iPads? The answer would appear to be a combination of both.

There are structural differences between contemporary primary and secondary classes that have influenced the implementation of the iPad trial. For example, a primary teacher has a dedicated class of students and can more easily incorporate cross-curricular learning and inquiry learning into everyday practice, with the iPad ever-present as a learning tool. Secondary students have multiple teachers timetabled to independently deliver specific subjects. Schools participating in the trial received two teacher iPads, which was limiting on secondary schools' ability to support an entire student cohort unless the school made a further investment in iPads and professional learning for all staff teaching that cohort.

But it is also notable that while each of the primary and special schools in the trial had a staff member in a leadership role who was responsible for the iPad trial, who successfully facilitated staff engagement, access to professional learning and technical support, and was personally also a competent and confident user of technology, this was not the case for all secondary schools in the trial.

Most importantly, the primary and special school teachers in the trial demonstrated greater preparedness and capacity to incorporate the effective use of iPads into learning and assessment activities. They taught the curriculum in a way where students could choose to use the iPad to facilitate, enhance and share their learning. Teachers in secondary schools were more likely to use the iPad as a simple substitution device (e.g. just using the iPad to search the internet) or design an 'iPad lesson', and in some conversations defeatist about the value of trying to extract benefit from the iPads.

For example, the evaluation observed a class undertaking a brainstorming activity where the sole use of the iPads was to record notes. It was not used to group and theme the notes, either within a student group or between groups of students. It was not used to present findings. It was not used to explore issues emerging from the brainstorming. The iPad was simply used as a substitute for pen and paper, butchers' paper or a whiteboard. Similarly, one secondary school has used the iPad to substitute printed novels in English with iBooks, and produced pdf documents on GoodReader as a substitute for worksheets.

> *'I am worried that iPads are a gimmick that do not lead to deep thinking and learning.'* (Teacher)

It might also be noted that the expectations of students' use of the iPads appeared to be different in secondary settings. The evaluation found technical support staff in secondary schools more likely to

talk about 'locking down the device' and restricting the iPad's use (especially personal use) than primary staff who are more open to students loading their own games and music to the iPad. At one secondary school students did not use the iPad every day. Another had 'No iPad' lessons, so students did not always bring the iPad to school. Their learning and classroom practice was affected when there was an 'iPad class' and not all students had their iPads.

> *'The teachers don't let us use our iPads.'* (Student)

There are other secondary schools in Victoria, interstate and overseas trialing the use of iPads. It is not known whether they have experienced similar issues to those observed in this trial.

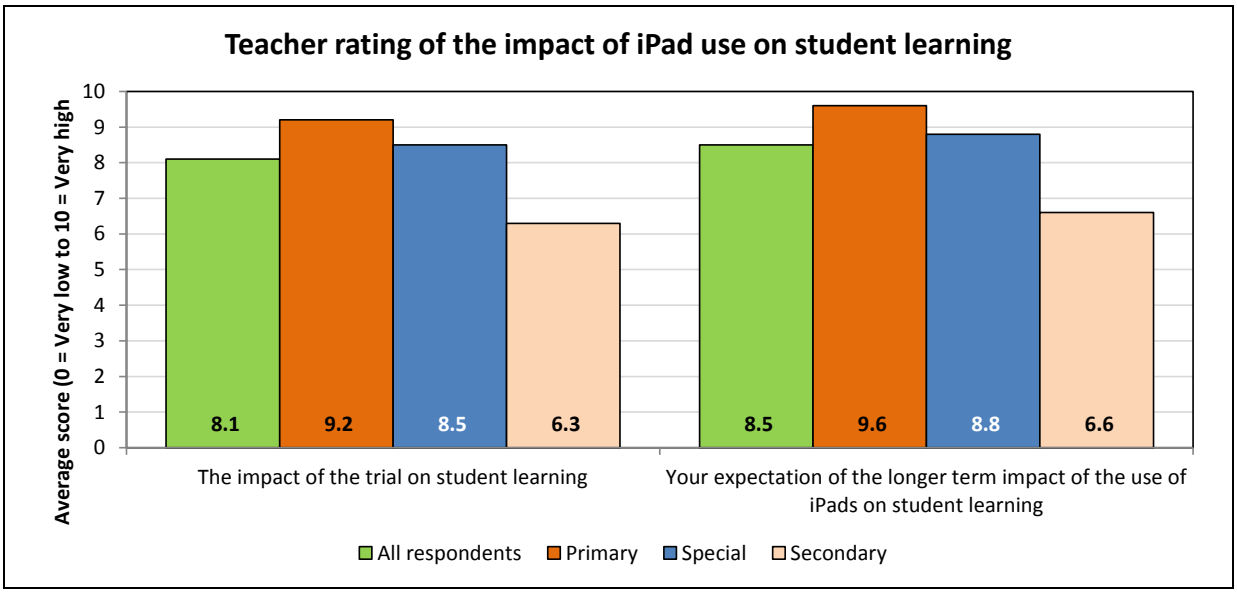
The evaluation has concluded that while there are real differences in secondary schools that might influence the way in which iPads are used, the other factors that existed in the trial schools to constrain effective iPad use were equally real, and potentially more influential. Therefore, it should not be concluded that iPads cannot deliver meaningful benefits in secondary settings – under the right conditions.

The future

When asked about future iPad use the response from teachers, students and parents was universally positive.

- 92% of teachers thought that the iPad represents value for money as a learning tool.
- 98% of teachers thought that iPads would be a feature of classrooms of the future.
- 80% of students would like to keep using the iPad at school next year, including 86% of primary students and 83% of students in special schools.
- 85% of parents would like their child to keep using the iPad at school next year, including 95% of parents of students in special schools.

Teachers from all schools expect that the use of iPads has already had and will in the future have an impact on student learning. Once again, the teachers in primary and special schools are more positive about the longer term outcomes of the use of iPads than their counterparts in secondary schools, but the overall results still give reason for optimism.



The ten trial schools are looking forward to 2012 and a time beyond the life of this trial. For some,

participation in this trial was part of a planned journey towards greater use of ICT in learning and exploration of the use of 1:1 devices. The experience of the trial has given them encouragement to continue. They are increasing the number of iPads in the school and seeking to have more students in a 1:1 relationship with a device, which is seen as the future of ICT (as opposed to banks of static computers, which are now being dismantled). For some teachers this trial has opened their eyes to more engaging teaching and learning, and they will not look back.

> *'If I ever moved schools the first thing I would do is to promote the use of iPads.'* (Teacher)

A small number of teachers that participated in the trial will not use iPads in their classes in the foreseeable future. Given the overall outcomes of the iPad trial – that is their students' loss.

For used effectively, the iPad can make a very real difference to the way in which students engage with their learning and the outcomes they achieve.

> *'It has the ability to support learning right across the curriculum, and high support needs students right through to very low support students can access it.'* (Special school teacher)

APPENDIX A. THE IPAD TRIAL

Establishment and roll out

The Department of Education and Early Childhood Development (DEECD) established the *iPads for Learning – In Their Hands* trial in 2010. The aim was to examine effective integration of ICT into teaching and learning by providing students with 1-to-1 access to iPads, facilitating access to quality digital resources and a range of applications, and developing understandings, skills and literacies relating to digital media. The trial sought to identify the impacts of using iPads to support learning for students, teachers and parents, and in particular:

- how the iPad can be used to support existing practice, and to enrich teaching and learning to enable transformational practice
- how the use of iPads can contribute to changes in pedagogy, teaching learning programs and assessment
- how the iPad has impacted on classroom organisation.

The trial initially provided 500 iPads to students in selected schools on a 1-to-1 basis, twenty-four hours a day, seven days a week for the term of the trial. Seven schools and the Royal Children's Hospital Education Institute were selected to participate. Their identification as 'Mac schools' with a high number of Mac devices was a factor in their selection to participate in the trial. The iPads were distributed in July 2010, with each school also receiving two iPads intended for staff use.

School	Number of iPads	Student cohort
Ringwood North Primary School	138	Years 5 and 6
Sunbury Downs Secondary College	104	Year 8
Manor Lakes P-12 College	103	Year 6
Westall Secondary College	57	Year 8
Dimboola Memorial Secondary College	36	Year 8
Epsom Primary School	26	Years 5 and 6
Victorian College of the Arts Secondary School	24	Year 8
Royal Children's Hospital – Education Institute	22	General
Victorian College for the Deaf	85	Specialist (whole school)
Warringa Park School	71	Specialist (whole school)

Each iPad was accompanied by a $100 voucher to fund the purchase of educational apps. A list of recommended apps was distributed to schools and they were expected to download these apps to their iPads. Participating schools also received a discretionary one-off grant of $5,000 to support their participation in the trial (e.g. attendance at project briefings, professional learning, purchase of additional iPads).

In September 2010 the trial was extended to assess the impact of iPads on students with disabilities and additional learning needs, and in particular focus on teaching and learning outcomes that can be achieved for these learners using these devices. An additional 156 iPads were purchased for use at Warringa Park School and the Victorian College for the Deaf. The two schools contributed 50% to the purchase of the devices, with the Office for Government School Education contributing the remaining 50%.

Trial support

Roll out and support for the trial was provided through staff in the Department's Ultranet and eLearning team. Team members visited the trial schools on several occasions in 2010 and 2011.

A suite of support resources (e.g. handbooks, tips and guides, resource lists, protocols, research summaries) were produced by the Department and made directly available to participating schools, and other schools through the Department's comprehensive *iPads for Learning* website (http://www.ipadsforeducation.vic.edu.au/). The Department has received inquiries from interstate and overseas about the trial and access to its support resources.

An online forum for trial schools was established on the Ultranet. This provided interested teachers with an opportunity to share ideas, experiences and apps and ask questions of one another and the Ultranet team. The Ultranet team has also used Twitter to communicate with teachers in participating schools.

Professional learning

Warringa Park School and VCD participated in a roll out day at VCD on 19 November 2010 to enable DEECD to explain the purpose of the trial and to provide staff with initial professional learning on use of the iPad. Apple educators were present.

A professional learning day for teachers participating in the iPad trial was held at Melbourne Convention and Exhibition Centre (MCEC) on 22 November 2010. Two to three staff from each of the initial eight schools were in attendance, with two staff from Warringa Park School also attending.

The day commenced with each school sharing their five top apps and how they thought the apps supported powerful learning. Schools were encouraged to reflect on how the apps mentioned by other schools might enhance their programs. Each school then had 10 minutes to present the story of their trial to date (actual or proposed), with a focus on how they were integrating iPads to support powerful classroom learning, how iPads were changing teaching practice, how staff capabilities in using the iPads have been supported, and what evidence might be collected to demonstrate deeper learning promoted through iPad use. Representatives from Apple attended the day and provided ideas on how to use the iPads to connect, collaborate and create.

On 17-18 March 2011 DEECD's Ultranet and eLearning team hosted a two-day professional learning activity for teachers from the iPad trial schools. Two staff from all schools were invited to attend, and all but one of the schools took up this opportunity.

The first day involved a bus tour and 'learning walks' through three schools, each providing an insight into the one-to-one use of iPads. The first visit to Ringwood North PS provided a primary perspective on iPad use. Ringwood SC, a school going it alone with iPads outside the trial gave a secondary perspective, with the final visit to the Victorian College of the Arts Secondary School presenting iPad use in a unique setting.

The next day, following a morning briefing in The Boardroom at Federation Square, participants selected one of four learning paths through and around Fed Square and its environs. A series of tasks required them to discover the art, history, geography and architecture of the city, with their iPad and camera central to their ability to learn, create and share. After lunch participants were fortunate to be joined by Stephen Heppell, an internationally acclaimed expert in innovation in learning, who discussed their experiences with using iPads for learning and challenged them to push the boundaries of learning in their schools.

A second 'road trip' on 9 August was held for teachers who did not attend the first bus tour. Participants attended Lilydale HS and Ringwood North PS to see how they were using iPads with their students.

Finally, a Celebration Day was held for teachers from participating trial schools on 9 December at the Digital Learning Hub at the Arts Centre. Teachers viewed a short video story about the journey of the iPad trial and the impact of iPads on students. They were encouraged to share their experiences of the trial with one another and:

- celebrate their successes
- create an original digital work
- construct a plan for the future of 1-to-1 devices in their schools.

All schools attended and took the opportunity to share their journey on the iPad trial.

APPENDIX B. EVALUATION SURVEYS

Copies of the questions asked in the end of trial teacher, student and parent evaluation surveys are presented on the following pages, with the aggregate results from the survey included against each quantitative question.

A baseline teacher survey was conducted in Term 1 2011. The final evaluation surveys were conducted in Term 4 2011 and generated:

- 101 teacher responses
- 457 student responses
- 172 parent responses.

The results presented here for each survey are the total summary results, and do not break down the results by school type. As discussed in the evaluation report, there were some significant differences between the responses from primary, secondary and special school settings.

Given the unique nature of the educational programs provided by the Royal Children's Hospital Education Institute (RCHEI) and the students' personal circumstances, the surveys completed by teachers, students and parents from RCHEI varied slightly from the surveys completed by respondents in all other settings. Where questions were similar the responses from RCHEI have been incorporated into the results presented here.

B1. Teacher survey

101 responses were received to the parent survey. 59 of these (58%) came from two schools – Warringa Park School and the Victorian College for the Deaf (compared with 42% for the Term 1 evaluation survey). The aggregate survey results are therefore skewed by teachers' experience of the iPad trial in these schools.

About you

1. Your school (and campus if applicable):
   - 38 Warringa Park School
   - 21 Victorian College for the Deaf
   - 9 RCH Education Institute
   - 7 Victorian College of the Arts Secondary School
   - 7 Ringwood North PS
   - 6 Westall SC
   - 5 Dimboola Memorial SC
   - 3 Manor Lakes P-12 College
   - 3 Epsom PS
   - 2 Sunbury Downs SC
2. Position:
   - 76 classroom teachers
   - 19 coordinators (17), coaches (2)
   - 5 principal class
   - 7 education support staff (6), speech pathologist (1)
3. Year levels (currently teaching):
   - 25 Primary: early years (8), middle primary (2), upper primary (15)
   - 59 Secondary: all (18), Yrs 7-10 (26), VCE/VCAL (15)
   - 11 P-12 (including RCHEI)
   - 6 no response

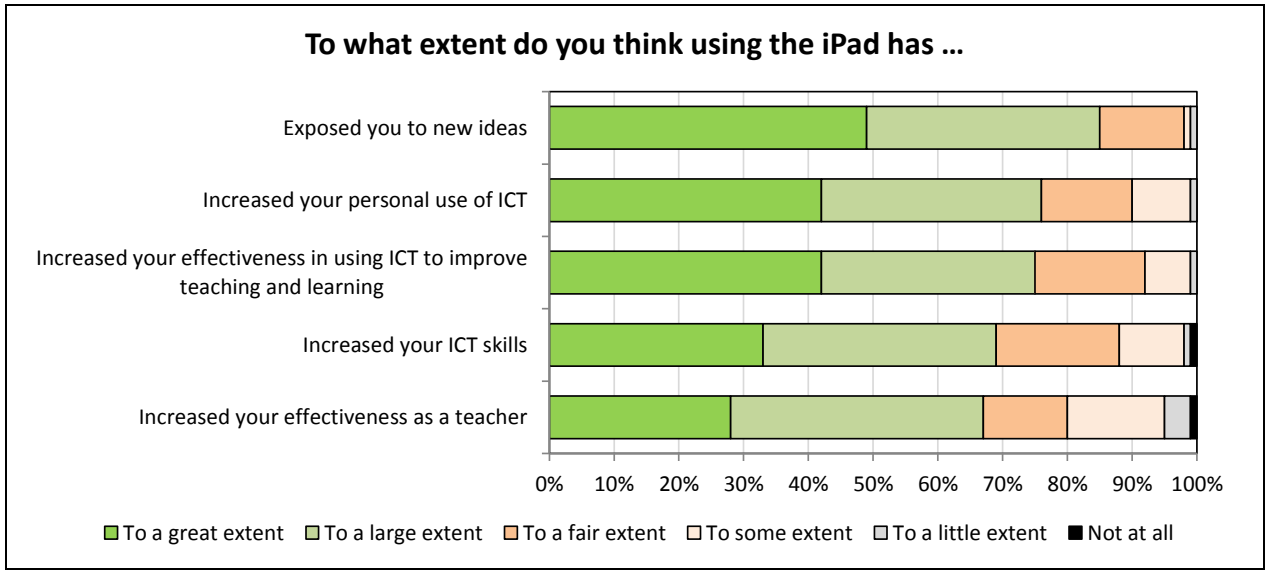
4. Curriculum areas where iPads were used:

38 All curriculum areas
32 Literacy
28 Numeracy / Maths
24 Humanities / Science / LOTE
16 Other (including Arts, Inquiry, ICT, etc.)
5 VCAL

5. To what extent do you think that using the iPad has:

Responses expressed as %	Not at all	To a little extent	To some extent	To a fair extent	To a large extent	To a great extent	% great or large
▪ Exposed you to new ideas	-	1	1	13	36	49	85
▪ Increased your personal use of ICT	-	1	9	14	34	42	76
▪ Increased your effectiveness in using ICT to improve teaching and learning	-	1	7	17	33	42	75
▪ Increased your ICT skills	1	1	10	19	36	33	69
▪ Increased your effectiveness as a teacher	1	4	15	13	39	28	67

Respondents were asked to explain their responses.

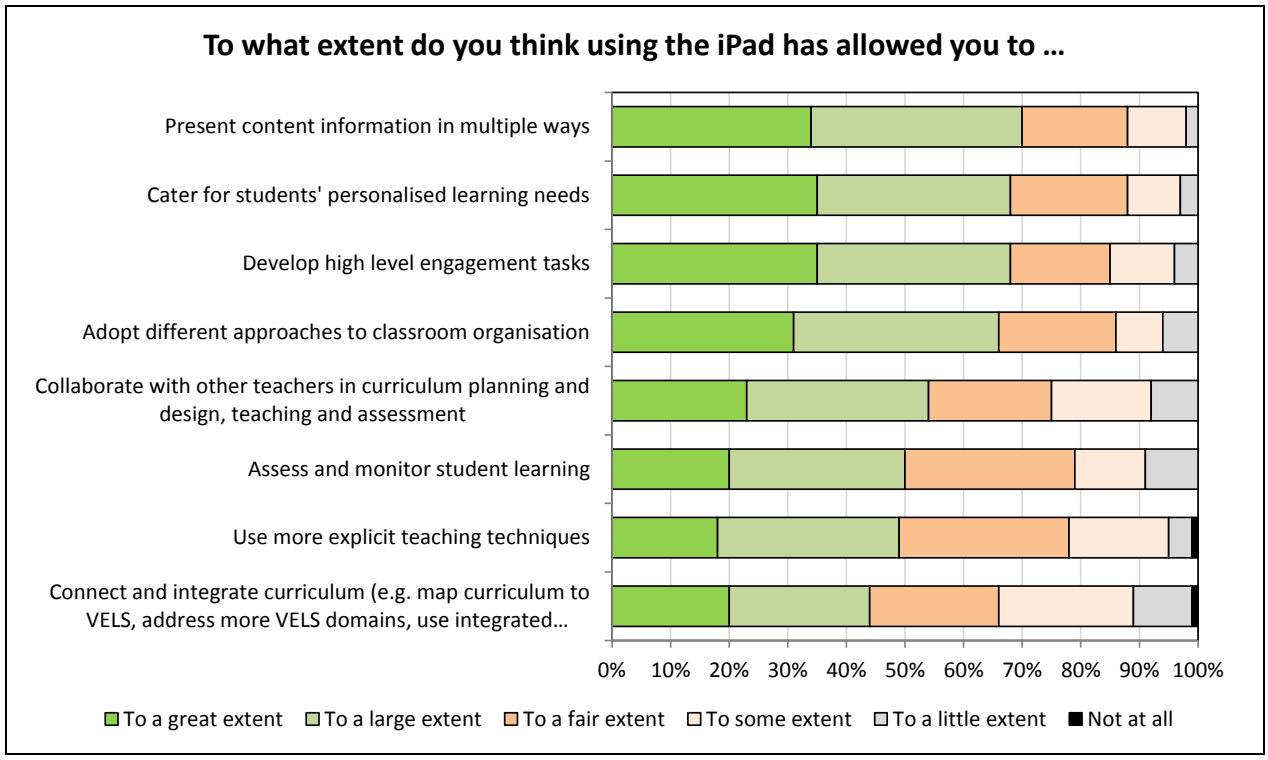


Pedagogy and learning

6. Please think about the way you have used iPads in your teaching. To what extent do you think that using the iPad has allowed you to:

	Not at all	To a little extent	To some extent	To a fair extent	To a large extent	To a great extent	% great or large
▪ Present content information in multiple ways	-	2	10	18	36	34	70
▪ Cater for students' personalised learning needs	-	3	9	20	33	35	68
▪ Develop high level engagement tasks	-	4	11	17	33	35	68
▪ Adopt different approaches to classroom organisation	-	6	8	20	35	31	66
▪ Collaborate with other teachers in curriculum planning and design, teaching and assessment	-	8	17	21	31	23	54
▪ Assess and monitor student learning	-	9	12	29	30	20	50
▪ Use more explicit teaching techniques	1	4	17	29	31	18	49
▪ Connect and integrate curriculum (e.g. map curriculum to VELS, address more VELS domains, use integrated programs)	1	10	23	22	24	20	44

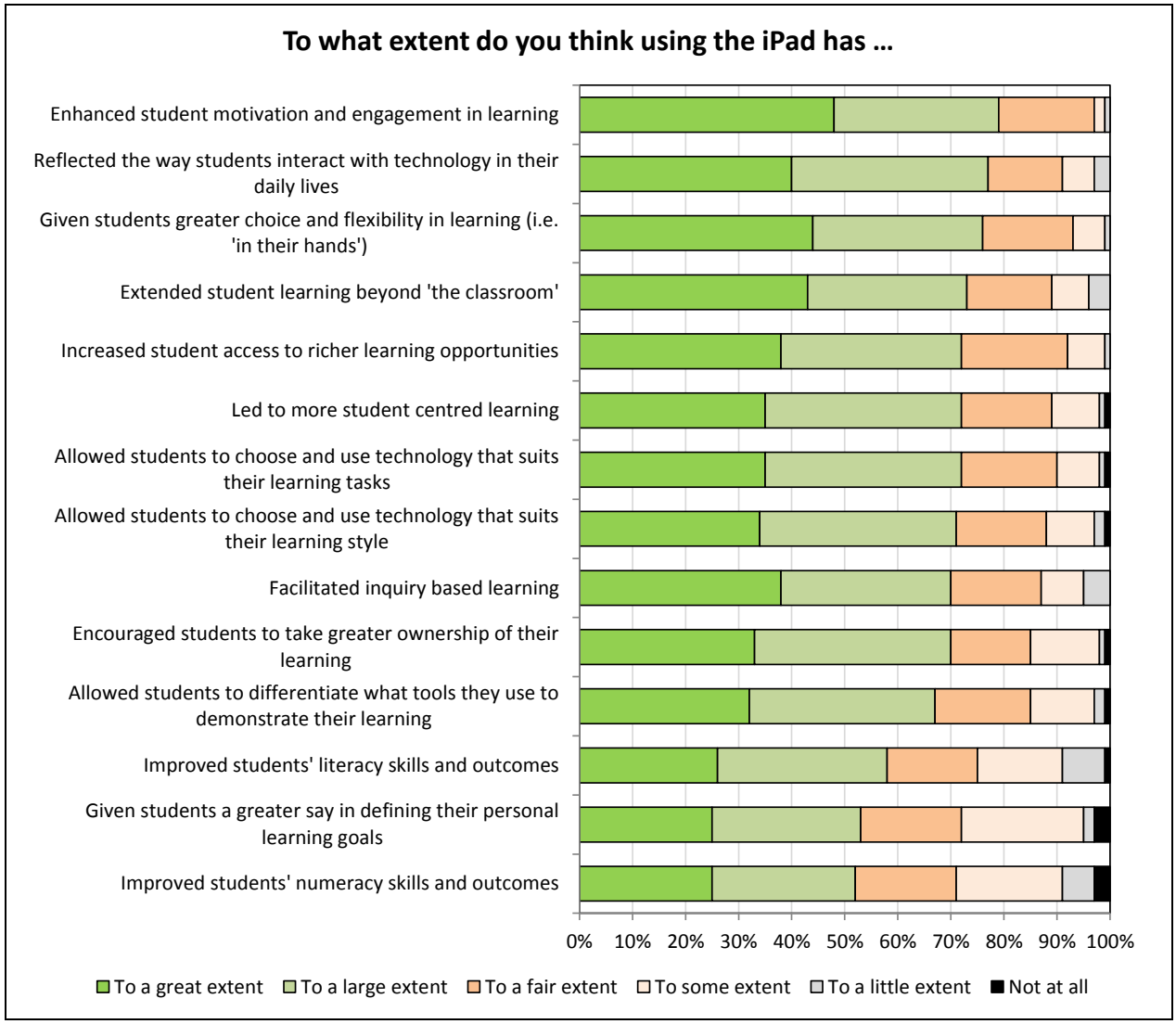
Respondents were asked to explain their responses.



7. To what extent do you think that using the iPad has:

	Not at all	To a little extent	To some extent	To a fair extent	To a large extent	To a great extent	% great or large
▪ Enhanced student motivation and engagement in learning	-	1	2	18	31	48	79
▪ Reflected the way students interact with technology in their daily lives	-	3	6	14	37	40	77
▪ Given students greater choice and flexibility in learning (i.e. 'in their hands')	-	1	6	17	32	44	76
▪ Extended student learning beyond 'the classroom'	-	4	7	16	30	43	73
▪ Increased student access to richer learning opportunities	-	1	7	20	34	38	72
▪ Led to more student centred learning	1	1	9	17	37	35	72
▪ Allowed students to choose and use technology that suits their learning tasks	1	1	8	18	37	35	72
▪ Allowed students to choose and use technology that suits their learning style	1	2	9	17	37	34	71
▪ Facilitated inquiry based learning	-	5	8	17	32	38	70
▪ Encouraged students to take greater ownership of their learning	1	1	13	15	37	33	70
▪ Allowed students to differentiate what tools they use to demonstrate their learning	1	2	12	18	35	32	67
▪ Improved students' literacy skills and outcomes	1	8	16	17	32	26	58
▪ Given students a greater say in defining their personal learning goals	3	2	23	19	28	25	53
▪ Improved students' numeracy skills and outcomes	3	6	20	19	27	25	52

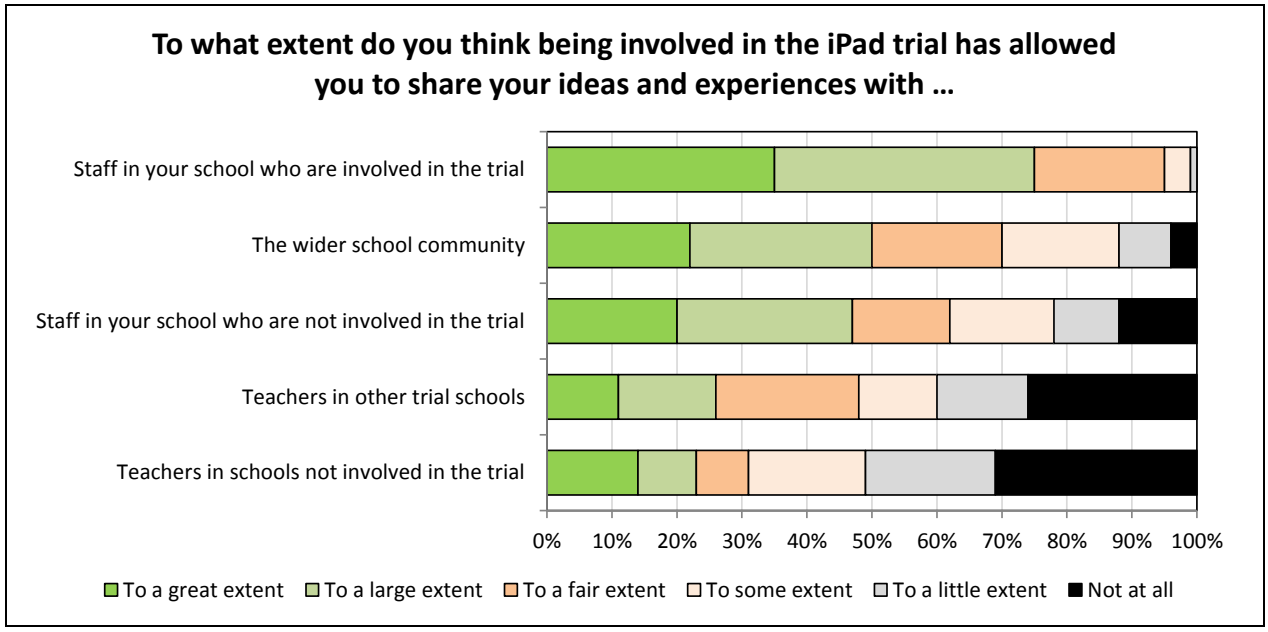
Respondents were asked to explain their responses.



8. To what extent do you think that being involved in the iPad trial has allowed you to share your ideas and experiences with:

	Not at all	To a little extent	To some extent	To a fair extent	To a large extent	To a great extent	% great or large
▪ Staff in your school who are involved in the trial	-	1	4	20	40	35	75
▪ The wider school community	4	8	18	20	28	22	50
▪ Staff in your school who are not involved in the trial	12	10	16	15	27	20	47
▪ Teachers in other trial schools	26	14	12	22	15	11	26
▪ Teachers in schools not involved in the trial	31	20	18	8	9	14	23

Respondents were asked to explain their responses.



9. How often do you think your students used the iPads for school-directed learning?
   - 86% Daily
   - 11% Every few days
   - 2% Weekly
   - 1% Fortnightly
   - \- Less than fortnightly

10. What are the 3 most important things you focused on in using iPads to improve student learning?

11. On a scale of 0 to 5 (where 0 = Nothing and 5 = Everything), how much do …

Responses expressed as %	0 - Nothing	1	2	3	4	5 – Everything	Average
▪ You know about using the iPad?	-	-	7	45	45	3	3.45
▪ Your students know about using the iPad?	-	3	4	36	50	7	3.52

12. My three favourite apps for learning are … (please explain why)

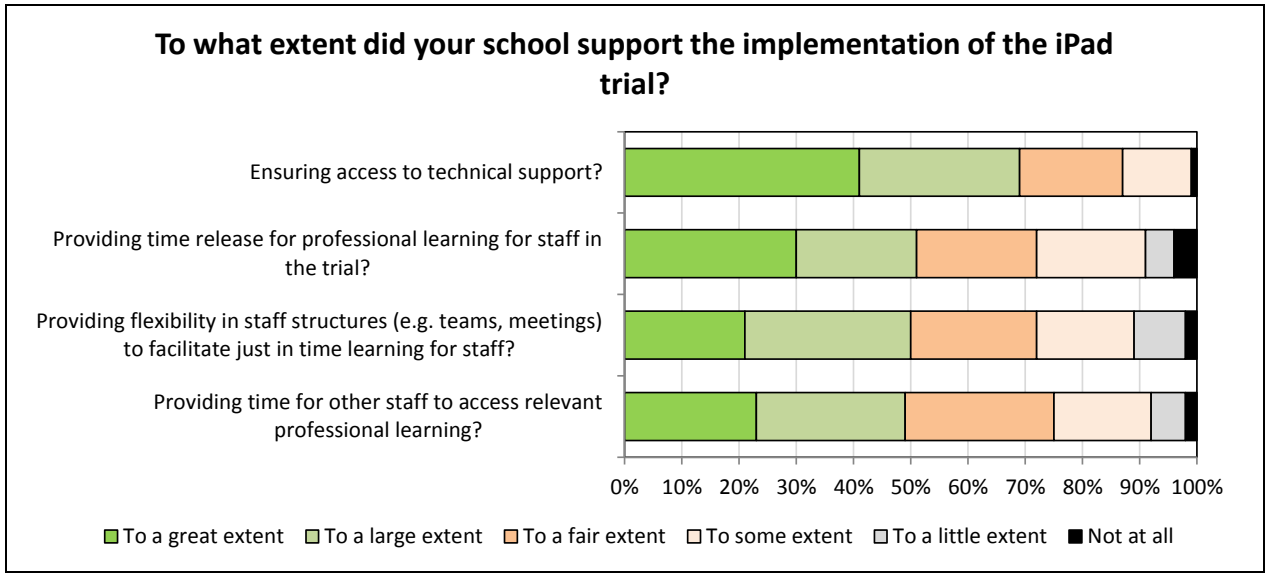
13. My three favourite apps of all time are … (please explain why)

In School Support

14. To what extent did your school support the implementation of the iPad trial?

	Not at all	To a little extent	To some extent	To a fair extent	To a large extent	To a great extent	% great or large
▪ Ensuring access to technical support?	1	-	12	18	28	41	69
▪ Providing time release for professional learning for staff in the trial?	4	5	19	21	21	30	51
▪ Providing flexibility in staff structures (e.g. teams, meetings) to facilitate just in time learning for staff?	2	9	17	22	29	21	50
▪ Providing time for other staff to access relevant professional learning?	2	6	17	26	26	23	49

Respondents were asked to explain their responses.



15. Was there sufficient technical support available at your school to assist with the implementation of the trial?
    88% Yes
    12% No (if 'No', what other support was needed?)

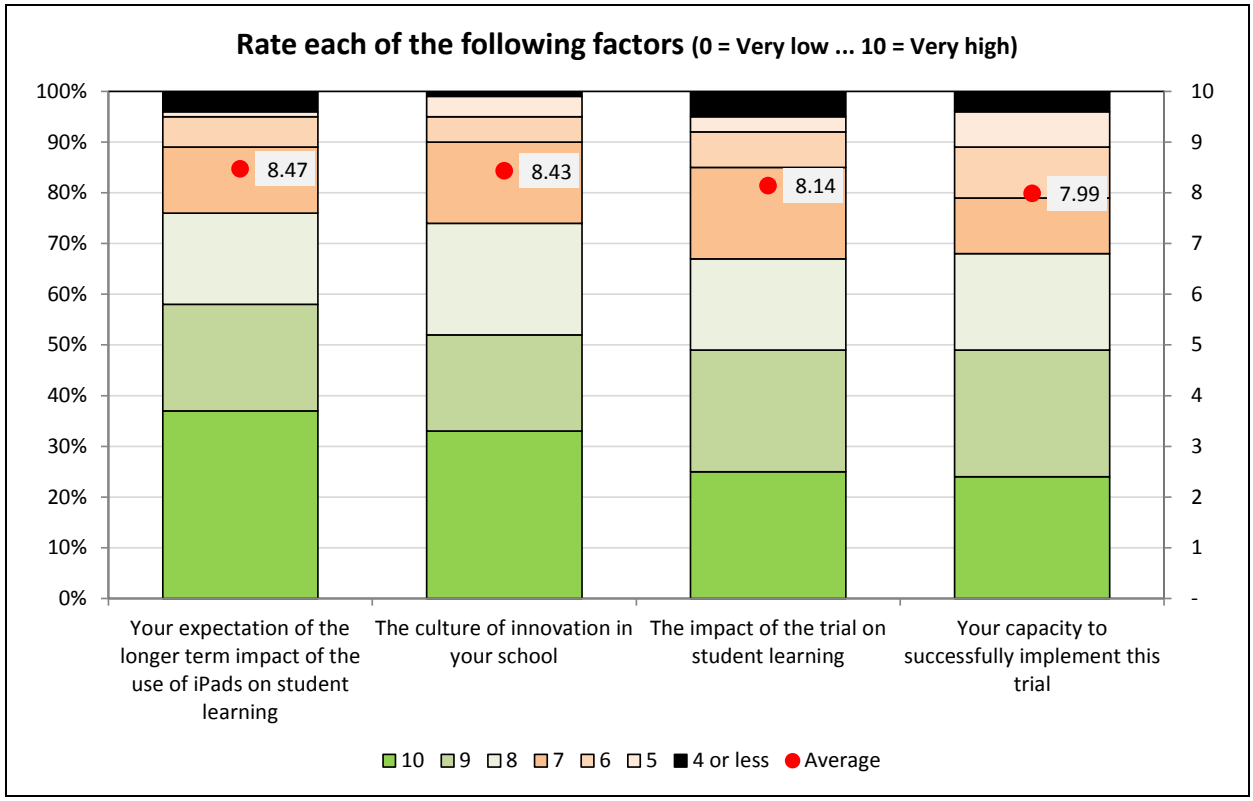
The Trial and Beyond

16. To what extent did you access the trial's Ultranet Design Space?
    - To a great extent
    3% To a large extent
    4% To a fair extent
    16% To some extent
    26% To a little extent
    51% Not at all

17. If you did access the Design Space, did you find it useful? Please explain your response.
    If you did not access the Design Space, what were the reason(s) for this. Please explain your response.

18. Please rate each of the following factors on a scale of 0 to 10, where 0 = Very low and 10 = Very high.

% response	0	1	2	3	4	5	6	7	8	9	10	Ave.
▪ Your expectation of the longer term impact of the use of iPads on student learning	-	-	1	-	3	1	6	13	18	21	37	8.47
▪ The culture of innovation in your school	-	-	-	-	1	4	5	16	22	19	33	8.43
▪ The impact of the trial on student learning	-	-	-	-	5	3	7	18	18	24	25	8.14
▪ Your capacity to successfully implement this trial	-	-	1	1	2	7	10	11	19	25	24	7.99



19. Do you believe that the iPad represents value for money as a learning tool?
    92% Yes
    8% No

Respondents were asked to explain their responses.

20. What has been the impact on students as a result of using the iPad throughout this year?

21/22. To what extent …?

	Not at all	To a little extent	To some extent	To a fair extent	To a large extent	To a great extent	% great or large
▪ Did the iPad increase parental engagement in their child's learning	9	13	26	25	14	13	27
▪ Was the trial at your school successful	-	-	6	10	32	52	84

Respondents were asked to explain their responses.

23. Does your school intend to continue to support the use of iPads beyond the duration of this trial?
    82% Yes
    1% No
    17% Don't know

Respondents were asked to explain their responses.

24. Do you think that iPads will be a feature of classrooms of the future?
    98% Yes
    2% No

B2. Student survey

457 responses were received to the parent survey.

About you

1. Gender

210 female
235 male
7 no response

2. Age

2 under 10 years
17 10 years
91 11 years
90 12 years
78 13 years
96 14 years
24 15 years
19 16 years
40 no response

3. What grade/year are you in at school?

11 Prep to 4
6 *Grade 5 or under (RCHEI)*
69 Grade 5
124 Grade 6
22 Year 7
155 Year 8
17 Year 9
11 Year 10
38 Year 11-12
4 no response

4. What school do you go to?

65 Manor Lakes P-12 College
86 Ringwood North PS
82 Warringa Park School
15 RCH Education Institute
41 Victorian College for the Deaf
81 Sunbury Downs College
24 Westall SC
28 Epsom PS
19 Dimboola Memorial SC
16 Victorian College of the Arts Secondary School

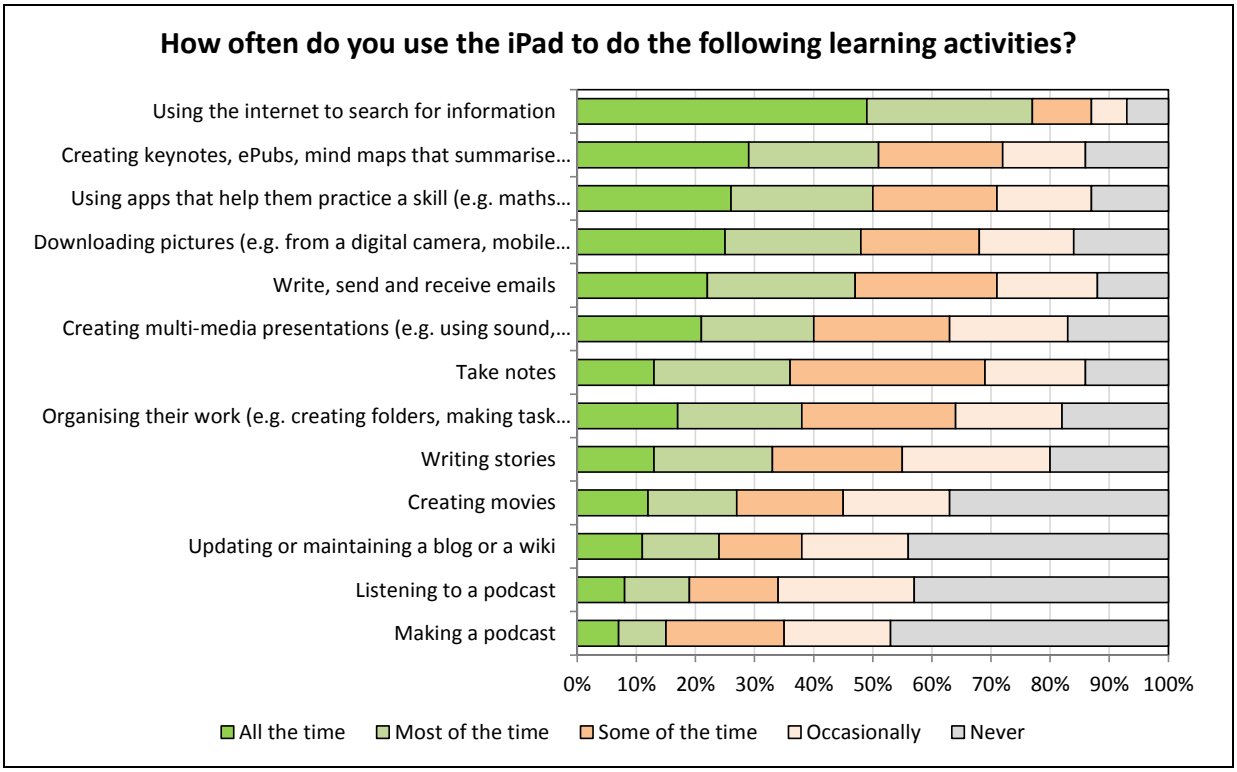
Your iPad use

5/6. How often do you use the iPad …

Responses expressed as %	Every day	Every few days	Once a week	Rarely	Never	Don't bring iPad home
▪ At school (*the hospital*)	67	18	4	9	2	
▪ At home for learning	30	32	11	16	4	7
▪ At home for personal use	45	26	9	9	4	7

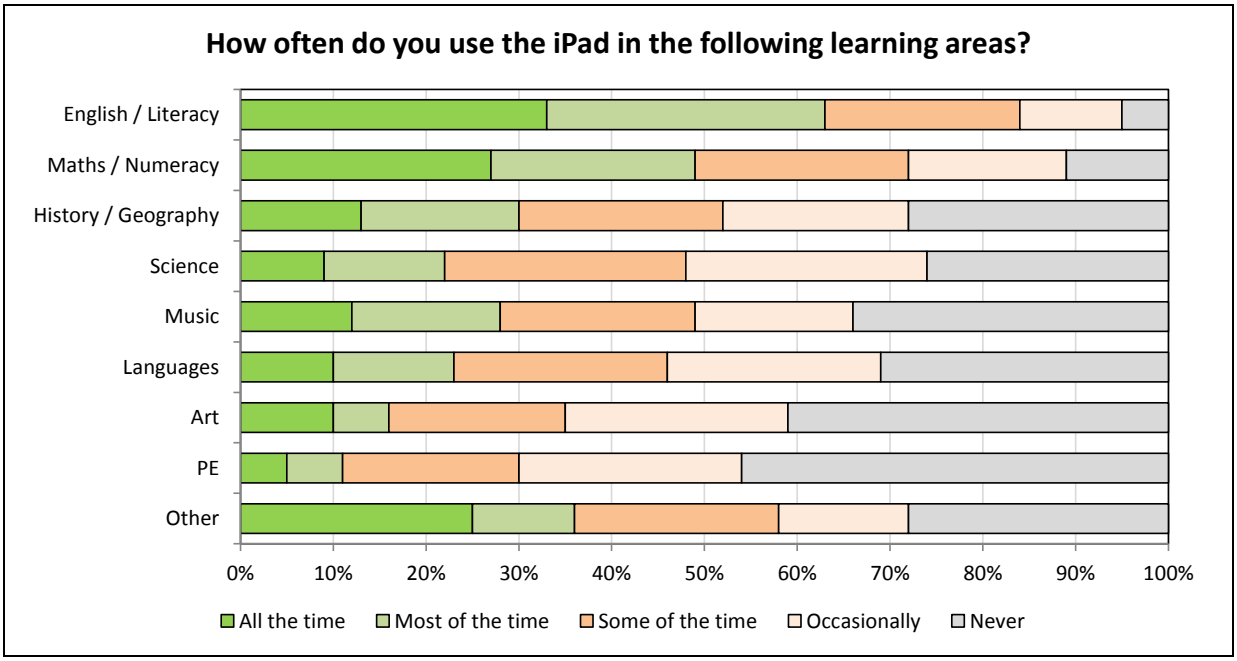
7. How often do you use the iPad to do the following learning activities (at school or at home)?

Responses expressed as %	All the time (4)	Most of the time (3)	Some of the time (2)	Occasionally (1)	Never (0)	Aver.
▪ Using the internet to search for information	49	28	10	6	7	3.08
▪ Creating keynotes, ePubs, mind maps that summarise your learning	29	22	21	14	14	2.38
▪ Using apps that help you practise a skill (e.g. maths drills, typing apps, spelling)	26	24	21	16	13	2.33
▪ Downloading pictures (e.g. from a digital camera, mobile phone or the internet)	25	23	20	16	16	2.26
▪ Write, send and receive emails	22	25	24	17	12	2.26
▪ Creating multi-media presentations (e.g. using sound, pictures and videos)	21	19	23	20	17	2.08
▪ Take notes	13	23	33	17	14	2.04
▪ Organising my work (e.g. creating folders, making task lists, calendars)	17	21	26	18	18	1.98
▪ Writing stories	13	20	22	25	20	1.83
▪ Creating movies	12	15	18	18	37	1.47
▪ Updating or maintaining a blog or a wiki	11	13	14	18	44	1.25
▪ Listening to a podcast	8	11	15	23	43	1.16
▪ Making a podcast	7	8	20	18	47	1.09



8. How often do you use your iPad in the following learning areas?

Responses expressed as %	All the time (4)	Most of the time (3)	Some of the time (2)	Occasionally (1)	Never (0)	Aver.
▪ English/Literacy	33	30	21	11	5	2.75
▪ Maths/Numeracy	27	22	23	17	11	2.37
▪ History/Geography	13	17	22	20	28	1.65
▪ Science	9	13	26	26	26	1.54
▪ Music	12	16	21	17	34	1.53
▪ Languages	10	13	23	23	31	1.47
▪ Art	10	6	19	24	41	1.18
▪ PE	5	6	19	24	46	1.00
▪ Other	25	11	22	14	28	1.92



9. What do you use the iPad for at home that is different to how you use it at school?

10. Pick the best answer for each of the following statements.

Responses expressed as %	Yes - absolutely	Sometimes	Not at all
▪ I like to use the iPad	68	25	7
▪ My teacher(s) like to use the iPad	60	35	5
▪ I like to work on my iPad on my own	44	48	8
▪ I like to work on my iPad with other students	34	51	15
▪ I prefer to use an iPad than a computer (desktop, laptop, notebook)	33	44	23

11. On a scale of 0 to 5 (where 0 = Nothing and 5 = Everything), how much do …

Responses expressed as %	0 - Nothing	1	2	3	4	5 – Everything	Average
▪ You know about using the iPad?	2	1	6	25	45	21	3.71
▪ Your teacher(s) know about using the iPad?	4	4	10	22	35	25	3.54

12. How easy is it to use the iPad?
    - 47% Really easy (5)
    - 34% Easy (4)
    - 16% Okay (3)
    - 2% Hard (2)
    - 1% Really hard (1)
    - *4.23 Average*

13. Has the iPad helped your learning?
    - 37% Very helpful
    - 39% Helpful
    - 19% A little helpful
    - 5% Not helpful at all
    - *2.08 Average*

14. Does using the iPad make learning more …

Responses expressed as %	Yes	No
▪ Fun	90	10
▪ Interesting	88	12
▪ Exciting	74	26

15. Tell us how the iPad helps you to learn?

16. My three favourite apps for learning are … (please explain why)

17. My three favourite apps of all time are … (please explain why)

18. What do you like about the iPad?

19. What don't you like about the iPad?

20. Would you like to keep using an iPad at school next year (*in the future*)?
    - 80% Yes
    - 20% No

Respondents were asked to explain their responses.

B3. Parent survey

172 responses were received to the parent survey.

About you

1. Gender
   - 140 female
   - 32 male

2. What grade/year is your child in at school?
   - 4 Prep to 4
   - 12 *Grade 5 or under (RCHEI)*
   - 22 Grade 5
   - 74 Grade 6
   - 12 Year 7
   - 29 Year 8
   - 8 Year 9
   - 2 Year 10
   - 9 Year 11-12

3. What school does your child go to?

45 Manor Lakes P-12 College
38 Ringwood North PS
21 Warringa Park School
20 RCH Education Institute
19 Victorian College for the Deaf
11 Sunbury Downs College
9 Westall SC
7 Epsom PS
2 Dimboola Memorial SC
0 Victorian College of the Arts Secondary School

iPad use

4. Thinking about your experience of the iPad in 2011, please answer the following questions?

Responses expressed as %	Yes	No
▪ It has been easy to help my child manage the iPad (e.g. keeping the device synced and up to date)	85	15
▪ The iPad is a cost effective device for my child	86	14
▪ It has been easy to help my child keep the device charged and ready for use	98	2

Respondents were asked to explain their responses.

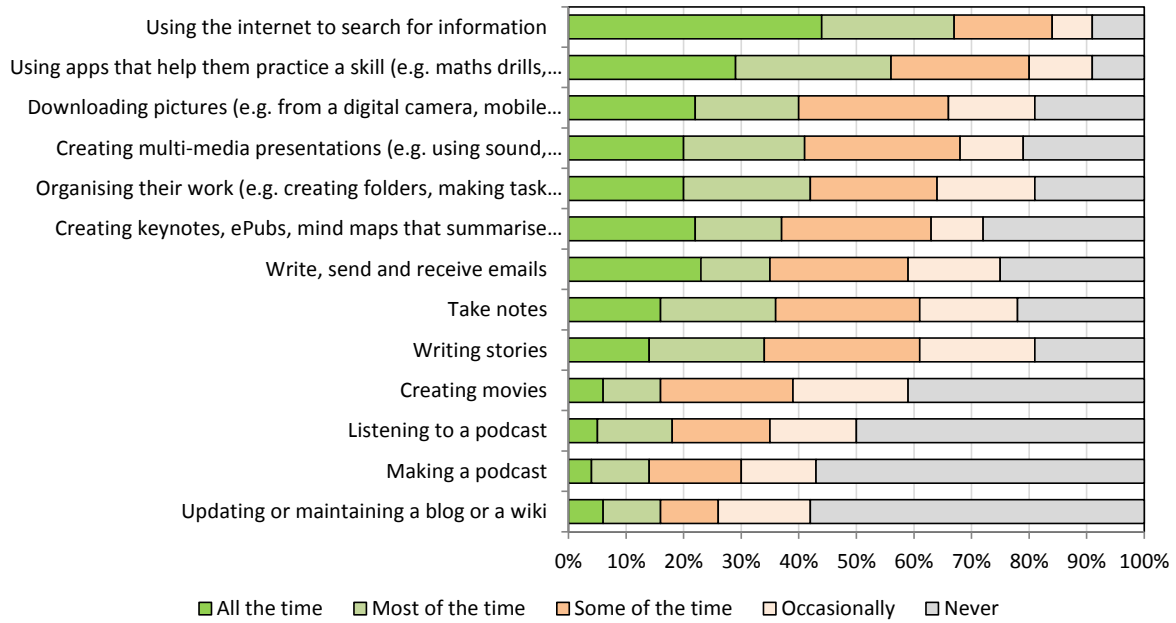
5/6. How often does your child use the iPad …

Responses expressed as %	Every day	Every few days	Once a week	Rarely	Never	I don't know / Don't bring iPad home
▪ At school (*the hospital*)	82	8	2	3	-	5
▪ At home for learning	51	30	4	8	3	4
▪ At home for personal use	65	22	5	3	1	4

7. How often have you seen (or been aware of) your child using the iPad to do the following learning activities (at school or at home)?

Responses expressed as %	All the time (4)	Most of the time (3)	Some of the time (2)	Occasionally (1)	Never (0)	Aver.
▪ Using the internet to search for information	44	23	17	7	9	2.84
▪ Using apps that help them practise a skill (e.g. maths drills, typing apps, spelling)	29	27	24	11	9	2.56
▪ Downloading pictures (e.g. from a digital camera, mobile phone or the internet)	22	18	26	15	19	2.10
▪ Creating multi-media presentations (e.g. using sound, pictures and videos)	20	21	27	11	21	2.09
▪ Organising their work (e.g. creating folders, making task lists, calendars)	20	22	22	17	19	2.07
▪ Creating keynotes, ePubs, mind maps that summarise their learning	22	15	26	9	28	1.94
▪ Write, send and receive emails	23	12	24	16	25	1.93
▪ Take notes	16	20	25	17	22	1.90
▪ Writing stories	14	20	27	20	19	1.88
▪ Creating movies	6	10	23	20	41	1.21
▪ Listening to a podcast	5	13	17	15	50	1.09
▪ Making a podcast	4	10	16	13	57	0.89
▪ Updating or maintaining a blog or a wiki	6	10	10	16	58	0.88

How often have you seen (or been aware of) your child using the iPad to do the following learning activities?



8. What does your child use the iPad for at home (*when it is not part of a lesson with the RCH teachers*)?

9. Has the iPad helped your child's learning?
   38% Very helpful
   43% Helpful
   15% A little helpful
   4% Not helpful at all
   2.15 Average

10. Do you think using the iPad has made learning for your child more …

Responses expressed as %	Yes	No
▪ Fun	93	7
▪ Interesting	94	6
▪ Exciting	89	11

Respondents were asked to explain their responses.

11. Tell us how you believe the iPad has helped your child to learn (*whilst at the hospital*)?

12. What do you like about the iPad?

13. What don't you like about the iPad?

14. Would you like your child to keep using the iPad at school next year (*in the future)*?
   85% Yes
   15% No

Respondents were asked to explain their responses.

APPENDIX C. FAVOURITE APPS

The final evaluation survey asked both teachers and students to list their three favourite apps – firstly, their three favourite apps for learning, and then their three favourite apps of all time. The students' answers, particularly to the question of learning apps, were influenced in part by what their teachers had encouraged them to use in their learning. The choice of favourite apps of all time, however, showed far greater diversity depending on age, gender and personal interests of students from primary, secondary and special schools (e.g. Modern Combat 1 to 8 and Zombie Café vs Elmo Loves ABC and Talking Tom).

In the following lists the Top 10 apps are briefly described.

Teachers' favourite learning apps

One hundred and one teachers responded to the final evaluation survey and commented on their three favourite educational apps. From all of these teachers the favourite learning app was Keynote, with exactly one third of teachers mentioning this app. However, the next most popular app (Safari) was nominated by less than 10% of teachers, and the sixth most mentioned app only had five responses. Overall 125 different apps were nominated. This highlights the enormous range and diversity of quality educational apps that exist, suggesting that there are probably apps out there that every teacher could use to some degree to support the learning needs of every student.

Favourite learning apps		Description
Keynote	34	Apple's equivalent of Powerpoint. Students can create professional presentations quickly and easily about any topic that they wish.
Safari	9	Apple's internet search engine.
Popplet	7	A platform to share ideas, capture thoughts and sort them visually. A mindmapping tool that can be used to plan projects, highlight learning.
Strip Designer	7	Comic strip design tool. Allows students to create comic strips by adding images, photos and text.
Proloquo2Go	6	A full-featured augmentative communication solution for people who have difficulty speaking. It can be personalised for each individual student.
GoodReader	5	A PDF reader for the iPad. It can be used to read books, magazines, worksheets.
Reel Director	5	A video editing tool for the iPad. It can be used to create movies.
Story Patch	5	Allows children to create their own picture books.
iBooks	5	A way of downloading, storing and reading ebooks and edocuments.
Pages	5	A word processing app – exclusively designed for mobile devices. Allows users to create and edit documents.

▪ 1000 Sight Words	▪ Fraction Factory	▪ Quickvoice
▪ 3D Cell Stain	▪ Fun with Words	▪ School A to Z
▪ 5 Green & Speckled Frogs	▪ Functional Skills System	▪ Scrabble (Challenging)
▪ ABC iView	▪ Games apps	▪ Screen Chomp
▪ ABC Train	▪ Garage Band	▪ Shadow Puppets
▪ Animation Creator HD	▪ I can draw	▪ ShowMe Interactive Whiteboard
▪ Art Authority	▪ ICardSort	▪ Simple Minds
▪ ArtikPix	▪ iCreate	▪ Skype
▪ Auslan	▪ iMovie	▪ Smartypants school
▪ Auslan Dictionaries	▪ iSentence	

▪ Autism Express ▪ Balloon Maths ▪ BeatWave ▪ Bento ▪ Calculator ▪ Chapter ▪ Chicktionary ▪ Color fill ▪ Comic life ▪ Cookie doodle ▪ Corkulous ▪ Creative Book Builder ▪ Definitions ▪ Desgin script ▪ Dictionary ▪ Doodle Buddy ▪ Dragon Dictation ▪ Drawing apps ▪ Drawing Pad ▪ Dropbox ▪ e communicate ▪ Edmodo ▪ Elmo Loves ABC ▪ EpiNote ▪ Explain Everything ▪ Eyewitness ▪ First Words ▪ FishPond ▪ Fraction Drills	▪ iSpelling ▪ iThoughts ▪ iWrite ▪ JamPad ▪ Jumbo ▪ Jungle Time ▪ Magnet app ▪ Maps ▪ Math Bingo ▪ MathBoard ▪ Mathination ▪ Mimi the Monkey can Count ▪ Mindmap ▪ Monkey Maths ▪ My Spelling Test ▪ NASA Viz ▪ Notes ▪ Number Battle ▪ Numbers ▪ Office hd ▪ PhotoPad ▪ Pizza fraction ▪ Pocket Phonics ▪ Pocket Pond ▪ Posterous ▪ Presentation apps ▪ ProKeys ▪ Puppet Pals	▪ Smurf City ▪ Songify ▪ Sound note ▪ Soundprism ▪ Star Walk ▪ Starfall ABC ▪ stories2learn ▪ Story Kit ▪ StoryBook ▪ StoryBuddy ▪ Strip Maker ▪ TalkBoard ▪ TED ▪ The Periodic Table ▪ Timeline Eons ▪ Toddler Counting ▪ Toontastic ▪ Total Recall ▪ Touch Physics ▪ Touchybooks ▪ Translators ▪ Treasure Hunt ▪ Virtual Cell ▪ Voice Recorder ▪ VoiceThread ▪ Whiz Kid English Grammar ▪ Whizzit 123 ▪ Wolfram Alpha ▪ YouTube

Teachers' all-time favourite apps

The list of teachers' all-time favourite apps had a high degree of overlap with their list of favourite learning apps. In total 112 different apps were mentioned by teachers.

Favourite learning apps		Description
Keynote	19	Apple's equivalent of Powerpoint. Students can create professional presentations quickly and easily about any topic that they wish.
iBooks	15	A way of downloading, storing and reading ebooks and edocuments.
Dropbox	12	A free service that lets users share photos, documents and videos.
Angry Birds	5	A puzzle game based on physics.
Notes	5	A word processing tool that allows users to create and store notes.
Calendar	5	Simple calendar on the iPad that allows views per day, week or month.
Maps	5	Online maps that allow users to locate places, find where they are and how to get to a destination.
Safari	4	Apple's internet search engine.
Words with Friends	4	Literacy based game that allows players to compete against one another.
Scrabble	4	Apple's equivalent of Powerpoint. Students can create professional presentations quickly and easily about any topic that they wish.

▪ ABC iView	▪ GarageBand	▪ Race Penguin
▪ ABC News	▪ Getty Images	▪ ReelDirector
▪ Adobe Reader	▪ GoodReader	▪ School A to Z
▪ Akinator The Genie	▪ Google Maps	▪ Shazam
▪ Al Gore - Our Choice	▪ Gravity HD	▪ Skyoe
▪ Any visual apps	▪ Hiragana	▪ Smurfs
▪ AudioNote	▪ iMessage	▪ Sock Puppets
▪ Auslan	▪ iMovie	▪ Solitaire
▪ Bento	▪ iTunes	▪ Songify
▪ BingoMaths	▪ Jungle Money	▪ SonicPics
▪ Bluster	▪ Khan Academy	▪ SoundNotes
▪ Capitals	▪ Kindle	▪ StarWalk
▪ Carbon Chaos	▪ Lonely Planet	▪ StoryBuddy
▪ Chapter	▪ Mail	▪ StoryKit
▪ Chicktionary	▪ MasterChef	▪ Strip Designer
▪ Connect 4	▪ Maths Bingo	▪ Strip Maker
▪ Corkulous	▪ Monkey Lunchbox	▪ Sudoku
▪ Daily Notes	▪ Musical apps	▪ TalkBoard
▪ Doodle Buddy	▪ My Monster Pet Shop	▪ Talking Tom
▪ Easy Note	▪ Nations	▪ Tapzooo
▪ Echofon	▪ Nighty Night	▪ TeacherPal
▪ Edmodo	▪ Pages	▪ TED
▪ EduTecher	▪ Photo Manager	▪ The Age
▪ Eleven TV	▪ PhotoPad	▪ The Curse of Monkey Island
▪ Evernote	▪ Planets	▪ The Weather Channel
▪ Explain Everything	▪ Planner	▪ The Wheels on the Bus
▪ Facebook	▪ Please Touch the Exhibit	▪ Toddler JukeBox
▪ First Then Visual Schedule	▪ Pocket Informant	▪ ToDo
▪ FishPond	▪ Pocket Phonics	▪ Tour Wrist
▪ Fitness Tracker	▪ Pocket Pond	▪ TripAdvisor
▪ Flags Fun	▪ Pocket Universe	▪ Unblock Me
▪ Flipboard	▪ Pop Math	▪ Uno
▪ Fraction Drills	▪ Popplet	▪ Voice Thread
▪ FreeBooks	▪ Proloquo2Go	▪ Wordle

Students' favourite learning apps

Four hundred and fifty seven students mentioned 213 different apps in their list of favourite learning apps. Keynote (55% of students), Pages (33%) and Safari (19%) were clearly the most popular apps, but there was huge diversity in students' preferences.

Favourite learning apps		Description
Keynote	252	Apple's equivalent of Powerpoint. Students can create professional presentations quickly and easily about any topic that they wish.
Pages	153	A word processing app – exclusively designed for mobile devices. Allows users to create and edit documents.
Safari	88	Apple's internet search engine.
Math Board	42	An app for teaching and practicing addition, subtraction, multiplication and division. Can be customised for students' ability.
ReelDirector	38	A video editing tool for the iPad. It can be used to create movies.
Dictionary	36	Reference content of over two million words, including definitions,

Favourite learning apps		Description
		synonyms and antonyms.
Popplet	27	A platform to share ideas, to capture thoughts and sort them visually. A mindmapping tool that can be used to plan projects, highlight learning.
IBooks	26	A way of downloading, storing and reading ebooks and edocuments.
Notes	24	A word processing tool that allows you to create and store notes.
Math Bingo	18	An app for practicing addition, subtraction, multiplication and division problems via a bingo board.

- 1000 sight words
- 123d Sculpt
- 6 strings
- ABC NEWS
- AceFree
- Adobe Ideas
- Angry Birds
- Animals Lite
- App Store
- Art
- Art Studio
- Assemble
- Basketball
- BBC News
- Beer Pong
- Blackboard
- Blluster
- BMX
- Boggle
- Book
- Boot camp
- Bowling
- Brain Pop
- Brain Storm
- Brushes
- Build A Train
- Bus
- Calculator
- Calendar
- Captions HD
- Car Games
- Car Racing
- Cars
- Cat in the Hat
- Caterpillar
- Chapters
- Chicktionary
- Choice board
- City friends
- Clock Master
- Cooking games
- Corkulous
- Create a Car
- Fractions
- Fresh Fractions
- Fruit Games
- Fruit Ninja
- Games
- Garage Band
- GoodReader
- Google
- Google Earth
- Groovemaker
- Gun Bros
- Hangman
- Health
- Health work
- History
- Hotel games
- iDraft
- iMovie
- Interactive whiteboard
- iTranslate
- Jack of all tribes
- Jumbo Calculator
- Jumbo Word Find
- Jungle Coins
- Keyboard
- KidMath
- Literacy Fw Deluxe
- MadMaths
- Magnetic ABC
- Mail
- Maps
- Math
- Math Brain
- Math Ninja
- Mathletics
- Maths
- Maths bingo
- Maths Fraction
- Maths games
- Maths Number Battle
- Maths Puppy
- Md Maths
- Mind Mars
- Photo Pad
- Photos
- Physics app
- Piano
- Pizza Fraction
- Plane
- Play my friend
- Pocket frog cars
- Pocket phonics
- PocketCAS
- Pop Math
- Pop Maths
- Pow
- Pro keys
- Ps express
- Puppet Pals
- Race
- Reading apps
- Rocket maths
- Rush hour
- SBS Spelling
- Science
- Settings
- Show me
- Simple Physics
- Six Strings
- Skill Builder's
- Sky buger
- Slam dunks
- Smurfs
- Sound note
- Spell board
- Spelling
- Sport
- Star fall
- Star Walk
- Sticky Notes
- Stories
- Story Buddy
- Story kit
- Strip Design
- Subject
- Sudoku!

▪ Cricket games	▪ Modern Combat	▪ Sun smart
▪ Cut the Rope	▪ Money	▪ Super 7
▪ Discover	▪ Money Mathis	▪ Super Slice
▪ Divisibility Dash	▪ Monkey lunchbox	▪ Talkboard
▪ Doodle Buddy	▪ Monkey Math	▪ Talking Ben
▪ Doodle Jump	▪ Moon Maths	▪ Talking Tom
▪ Doodle Pad	▪ Motion Math	▪ Telling time touch
▪ Dragon Dictation	▪ Multi genius	▪ The calculator
▪ Draw	▪ Music	▪ The Wiggles
▪ Drawing pad	▪ My Homework	▪ There was an old lady
▪ Dropbox	▪ My pages	▪ ThoughtsHD
▪ Drums	▪ My portfolio	▪ Time
▪ Eden	▪ Note pad	▪ Timetables
▪ Editor photo	▪ Notebook	▪ Touch Physics
▪ Edmodo	▪ Number	▪ Treasure hunt
▪ Education	▪ Number chart	▪ truth or dare
▪ Elmo Loves ABC	▪ Number crunch	▪ Walky Talky
▪ Email	▪ Number line	▪ Wattpad
▪ English	▪ Numbers	▪ Wave beat
▪ ESL	▪ Nyan cat	▪ Were's my water
▪ Facebook	▪ office2HD	▪ Wikipanion
▪ Factor Samurai	▪ Park Maths	▪ Wolfram Alpha
▪ Fashion Maths	▪ PE	▪ Word
▪ First Words Deluxe	▪ Photo albums	▪ Word magic
▪ Fraction Samurai	▪ Photo captions hd	

Students' all-time favourite apps

Students listed 409 different apps among their all-time favourites, with the top app – Eden – receiving 54 nominations (12% of students).

Favourite learning apps		Description
Eden	54	Designed for mobile devices, this app replicates the creative block building genre of games like Minecraft.
Angry Birds	45	A puzzle game based on physics.
Facebook	42	Access to your Facebook account – designed for the iPad.
Safari	41	Apple's internet search engine.
Smurfs	37	Game based app that asks players to build a new village for the Smurfs to call home.
Keynote	32	Apple's equivalent of Powerpoint. Students can create professional presentations quickly and easily about any topic that they wish.
YouTube	28	Online database of video uploads.
Words with Friends	26	Literacy based game that allows players to compete against other players.
DragonVale	19	An app where players raise, feed and breed dragons.
FIFA 12	12	An app where you can play soccer - trading players, developing strategies and tactics to win the game.

▪ 2K	▪ Froggy Jump	▪ Pocket Pond
▪ 3D Chopper	▪ Fruit Ninja	▪ Pocket RPG
▪ 3d Pool Master	▪ Fun Maths	▪ Pocket Summoner
▪ ABC iView	▪ Fun With Words	▪ Pocket Weather

- Action Bowling
- AFL Scores
- Age of Zombies
- Air Hockey
- Algebra
- Amplitude
- Animal Academy
- App Store
- Aralon
- Art of Glow
- Asphalt 6
- Assasins Creed
- Azul
- Back 2 the Future
- Back Breaker
- Background
- Bakery Story
- Balloons TD
- Basketball
- Basketball Jam
- Basketmania
- Battlefield
- Beer Pong
- Bejeweled 2
- Blocks
- Bloody Gory
- Bloons Tower Defense 4
- Bloxorz
- Boggle
- Book
- Bowling
- Boxhead
- Brain Pop
- Brothers in Arms
- Brothers in Arms 2
- Bubble Free
- Bubble Stoober
- Bubble Trouble
- Bug Village
- Build a Train
- Build it Green
- Bunny Shooter
- Calculator
- Call of Duty
- Call of Mini
- Cam Wow
- Camera
- Captain America Super Soldier
- Car Games
- Card
- Carnivores Ice Age
- Game Apps
- Garage Band
- Geoblocks
- Geomon
- Glow
- Glow Art
- Google
- Google Maps
- Goosed Up
- Grafiti Ball
- Green Eggs
- Groovemaker
- GT Racing
- Gun Bros
- Gutter Ball
- Gyro Compass
- Hanging with Friends
- Happy Hills
- Harry Potter Spells
- Herald Sun
- Heydooda!
- High School Hero
- History
- Hospital
- Hot Pursuit
- Hotel Dash
- Hungry Shark
- iBooks
- iFunny
- IGN
- IMDB
- iMovie
- Imposible Test
- Infinity Blade
- Instagram
- Intallous
- iPod
- iPredict
- Island HD
- iTunes
- JB Bounce
- Jet Pack Joyride
- Jet Set Go
- Jump Jack
- Jungle Coins
- JVZ
- Kung Fu Panda
- Kung Fu Panda 2
- Las Vegas Tower
- Lego Harry Potter
- Lets Golf 3
- Light Bike
- Pocketphonics BC
- Pop Star
- PopBooth Photo Booth
- Popplet
- Puppet Pals
- PuppetShow
- Race
- Race Penguin
- Rat on a Scooter!
- Rat On the Run
- Reading apps
- Real Car Racing
- Real Football 2010
- Real Football 2011
- Real Steel
- Reckless Getaway
- Red Ball
- ReelDirector
- Reminders
- Restaurant Story
- Rugby
- Rugby Kicks
- Rugby Nations
- Rush Hour
- Sally's Spa
- Sand Slides
- Santas Village
- Scene it? Movies 2
- School A to Z
- Scramble
- Scribblenauts
- Scriblify
- ShopShop
- Simple Physics
- Sketch Book
- Sky Burger
- Skype
- Slide to Unlock
- Smash 2012
- Snoopys Fair
- Soccer
- SoundPaper
- Space City
- Spiderman
- Star Doll
- Star Wars
- Stickman BMX
- Stickman Skater
- Stray Souls
- Street Fighter IV
- Strike and Bowling
- Strip Designer

- Carnivores: Dinosaur Hunter
- Castle Craft
- Castle Empire
- Castle Kingdom
- Cat in the Hat
- Cat Physics
- Chalkboard
- Checkers
- Chickionary
- Choo Choo Train
- Circus City
- City Friends
- City Story
- Cliffed
- Clock
- Clock Master
- COD
- COD Zombies
- Colouring
- Construct
- Contract Killer
- Cooking Academy
- Cooking Games
- Cooking Mama
- Cooking Mama 2
- Cotton Candy
- Counting Paris
- Crafted
- Create a Car
- Cricket
- Crue
- Cube Runner
- Cup Cake Maker
- Cut it!
- Cut the Rope
- Design
- Dictionary
- Dino Rus
- Djay
- Doctor Who
- Dog Fight
- Donut games
- Doodle Army
- Doodle Buddy
- Doodle Jump
- Doom's Knight
- Drag Racing
- Draw Free
- Dream Park
- Driving Mania
- Duke 3D
- Logic Box
- Lost Monkey
- Mad Math
- Madden 12
- Magic Piano
- Mail
- Manga Rock
- Maps
- Math
- Math Bingo
- Math Board
- Maths Board
- Maths Quiz Game
- Media Burner
- Messages
- Messenger
- Metal Storm
- Minecraft
- Mini Militia
- Minute to Win it
- MMA by EA
- Modern Combat
- Modern Combat 2
- Modern Combat 3
- Modern Combat 4
- Modern Combat 5
- Modern Combat 6
- Modern Combat 7
- Modern Combat 8
- Monkey Lunchbox
- Mooncraft
- Moster Pet Shop
- Motorbike
- MSN
- Muffin Knight
- Music
- Music Apps
- My Horse
- My Journal
- N.O.V.A 2
- NBA 2K12
- NBA JAM
- Need for Speed
- Nemo
- New York Roller Coaster
- New York Zombies
- Newspaper
- NewsTalk
- Notes
- Nova
- Numbers
- Nuts!
- Style Studio HD
- Sunday Lawn
- Sunshine Cruise Lines
- Super KO Boxing 2
- Super Stickman Golf
- SuperMania
- Surviving High School
- Sushi Maker
- Talking Ben
- Talking Tom
- Talking Tom 2
- Tap DJ
- Tap Pet Hotel
- Tap Tap
- Tap Zoo
- Tattoo You
- Temple Run
- Tennis
- The Age
- The Amazing Race
- The Impossible Test
- The Official Ozzy Osborne App
- The Settlers
- The Simpsons
- The Sims
- Tiny Tower
- Tiny Wings
- Tiny Zoo
- Tobuscus
- Toca Doctor
- Toca Hair Salon
- ToDo
- Top Girl
- Touch Detective
- Touch Off
- Touch Physics
- Touchgrind BMX
- Toy Story 3
- Trains
- Translator
- Treasure
- Treasure Story
- True of False
- Tumblr
- TuneIn Radio
- Twitter
- UFC
- Ultimate Frisbee
- Unblock Me
- Uno
- Unpleasant Horse

▪ Eagle	▪ Nyan Cat	▪ Virtual Families
▪ Ebuddy	▪ Office Jerk	▪ Virtual Villagers
▪ Edmodo	▪ Office2 HD	▪ Walkie Talkie
▪ Eenies	▪ Oven Break	▪ Warching Movies
▪ Elmo	▪ Pac-Man	▪ Warship
▪ Email	▪ Pages	▪ WattPad
▪ Enjoy That	▪ Paper Toss Cars	▪ WaW Zombies
▪ Epic Citadel	▪ Paper Toss HD	▪ Wedding Dash
▪ Escape - Norm's World	▪ Parking HD	▪ Wee Mee
▪ Eyetv	▪ Parking Mania	▪ Wiggles
▪ Face Over Lite	▪ Penguins Lite	▪ Wikipanion
▪ FaceTime	▪ Perfect Downloader	▪ Winterboard
▪ Factor Samurai	▪ PES 2012	▪ Wolfenstein
▪ Family Guy	▪ Pet Hotel	▪ World Explorer
▪ Fashion Maths	▪ PhotoPad	▪ World Tour
▪ Fast and Furious	▪ Photos	▪ WWE
▪ FastFive	▪ Photoshop Express	▪ X-Plane
▪ FIFA	▪ Piano	▪ Yhatzee
▪ FIFA 10	▪ Pizza Factory	▪ Zenonia
▪ FIFA 11	▪ Plane	▪ Zentomino
▪ Finger Slayer	▪ Planets	▪ Zombie Café
▪ Football	▪ Plant Tycoon	▪ Zombie Crash
▪ Footyflick	▪ Plants vs Zombies	▪ Zombie Crisis
▪ Fotolr PS HD	▪ Pocket Frogs	▪ Zombie Farm
▪ Fover Drive	▪ Pocket God	▪ Zombie Highway
▪ Fragger HD		▪ ZoodlePad
▪ Friendly Facebook		

APPENDIX D. TRIAL IMPLEMENTATION

From the evaluation's perspective the roll out of the iPad trial to schools and its implementation in schools has for the most part proceeded smoothly. The implementation of the iPad trial was influenced – positively and negatively – by a number of in-school factors and the support of DEECD's Ultranet and eLearning team.

Selection of trial schools

Drawing on the experience of the Department's Netbook trials (which found that familiarity with ICT devices and access to relevant technical support were critical to the roll out of the Netbooks), and with an 18 month window for the roll out of the iPads trial, it was decided that selection of schools in the iPad trial would recognise familiarity with Macs and access to technical support. It was thought that this would mitigate against schools having to work through a lengthy start up period which would limit the time for teachers and students to spend on actual use of the devices in the classroom.

Teacher readiness

Trial schools received iPads, a $5,000 implementation grant, and access to professional learning and support resources. Schools were encouraged to have the iPads in the hands of students as soon as possible, as it was thought that this would generate momentum for the use of the iPads. While this did happen in schools where teachers were pedagogically confident and comfortable in using ICT, it created uncertainty and pressure where this capability did not exist within the school. In these schools teachers would have preferred some 'sandpit time' to get themselves ready for the roll out of the iPads to the students (as was envisaged, for example, in provision of the grant funding).

Given the state of readiness of some of the trial schools, there might have been a greater focus on working with schools' leadership teams to determine how to best support trial teachers to build their capacity through use of the grant, other resources and the trial's community of practice.

iPad protocols and allocation

Schools in the trial had to think carefully through how they structured and set up their trial, and the implications for the future use of the iPads. Schools received enough iPads to give one to each student within the selected cohort. Students were allocated a device, had (or their parents had) an iTunes account, had a dedicated email address for sending and receiving work and communicating with their teachers, and took the iPad home with them. Trial experience indicates that the success of this model was influenced by the support the student got from home (e.g. access to the internet, parental purchase of additional apps) and home expectations of appropriate iPad use.

Trial website

Teachers found the resources available through the trial website useful for background on the use of the iPads and finding apps to use in the classroom (http://www.ipadsforeducation.vic.edu.au/).

Suggested apps

When the trial commenced in 2010 schools were given a list of apps that were recommended to be loaded onto all of the students' iPads. This was useful in getting a base body of approved apps onto the devices and providing a platform from which other apps could be added.

Evaluation feedback from the schools, at a time when the range and quality of apps available is much more advanced than it was even 12 months ago, indicates that some of these initial apps were of marginal value to their students and not great value for money when each iPad was accompanied by a

finite $100 start-up contribution. Over time alternative apps have been identified and new apps have been released. Some are free, some are of low cost, and some are very expensive (but considered of high value to a particular student cohort, e.g. Proloquo2Go costs approx. $189 per device).

In hindsight the initial app list might have been better presented as suggestions, or start-up funding split $50-$50 between the recommended list and subsequent purchases. Additions, deletions and amendments to the list of suggested apps are and should continue to be updated on the *iPads for Learning* website on an ongoing basis as the Ultranet and eLearning team, teachers and students identify (and peer review) new apps.

Some schools have developed their own app lists for 2012 drawing on DEECD lists, student surveys, and internet/Twitter/Ning lists of apps.

Collaboration and information sharing

Teachers who participated in the trial's planned professional learning days valued the opportunity to visit schools to see how they were using iPads and to chat to peers about their experience.

And overall, 75% of teachers thought that they had to a 'great' or 'large' extent been able to share their ideas and experiences with other staff in the school involved in the trial (vs 79% who anticipated this in the baseline survey), while only 25% had shared their experiences with teachers in other schools.

In practice, while some teachers have not had significant opportunities for sharing their iPad journey ('I have discussed applications with other staff involved in mathematics in the trial, but few others'), almost all schools involved in the trial have become focal points for local, interstate and international visitors.

> *'As a staff, we are continually meeting to share the apps and outcomes. Through parent information nights, we have been able to share the fantastic things our school is achieving in the areas of iPads. I am continually getting phone calls from other schools throughout Victoria, Queensland, WA, the Northern Territory and even from the USA. I have been asked to submit articles for a number of magazines and blogs. I have been to schools in Perth and Alice Springs to work alongside the leadership team and staff with the implementation of iPads. I have presented our journey in Brisbane, Perth, Alice Springs and in Melbourne. We have also had numerous visits to our school from people in Victoria, across Australia and even from Singapore!'*
>
> *'We have had visitors from other schools in the state come and look at the iPads being used in the classroom. I liked this because they got to see first-hand the process, and not always the end result. Their questions and our answers reinforced our own thoughts too. We also had some teachers from Singapore who were very impressed. Our students often showed their presentations and keynotes to the middle school or at Monday morning assemblies.'*
>
> *'The professional learning culture around the iPad in the school community is outstanding. Teachers are very excited by the potential for learning. Many schools visit our school to see how we are using this technology.'*

Some schools have also had the opportunity to showcase iPad use an implementation at conferences and education forums. For example, Ringwood North PS was involved in the DEECD 2011 Innovation Showcase, with students working with iPads at the event. Epsom PS presented at Slide2Learn, an international community for teachers exploring the use of mobile devices (predominantly Apple devices). Two teachers participated in a podcast uploaded to iTunes discussing the implementation of the iPad trial (RUConnected).