Overview:

A test drive of the wireless laptop computer solution was carried out in three NSW schools for a period of two weeks from May 25 to June 5 2009.
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    Bathurst Campus Students
    Bathurst Campus Parents
    Bathurst Campus Teachers
    Cherrybrook THS Executive
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  Student Survey Responses
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  Teacher Survey Responses
    Teacher Survey Results in Zoomerang Format
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Laptops Test Drive Evaluation Page 2
EVALUATION REPORT

LAPTOPS FOR LEARNING TEST DRIVE

Background

A test drive of the wireless connected student laptop computers took place in two city schools and one country school from May 25 to June 5 2009. The schools involved were:

- Arthur Phillip High School (Parramatta)
- Bathurst High Campus of Denison College (Bathurst)
- Cherrybrook Technology High School (Cherrybrook)

Each school was allocated 90 computers for Year 9 students and 15 computers for teachers plus 10 spare computers for the two week period of the trial. They were used in a variety of school settings and all key learning areas.

Four Technical Support Officers were appointed to each of the test drive schools. They received training on Friday May 15 and commenced working in their schools on Monday May 18.

In each school, the wireless network was installed by IBM into the library plus 11 or 12 learning spaces. The laptop computers were delivered to the school on Tuesday May 19.

Nineteen of the teachers involved in the test drive were given training in the Adobe suite of programs on the laptops at North Sydney College of TAFE on Monday May 18.

Teachers involved in the test drive took part in professional learning days at their schools on:

- Weds May 20 Bathurst Campus of Dennison College
- Thurs May 21 Arthur Phillip HS
- Fri May 22 Cherrybrook Technology HS

During these days the teachers learnt about Windows 7 from Microsoft personnel and were assisted by personnel from Curriculum K12 and the Centre for Learning Innovation to plan their lessons and activities for the period of the test drive.

Commissioning of students laptops commenced on Friday May 22 and was completed on Monday May 25. On Monday May 25, a Microsoft representative visited each school to run though the features of Microsoft OneNote with the students. Teachers and students then used the laptops over the next two weeks.

In each of the schools, the laptops were used in learning by all of the students issued with laptops in at least three subjects over the two weeks. As well as this, Cherrybrook organised one class that used the laptops in all of their lessons and Bathurst Campus organised one class that used the laptops in all of their “core” subjects.
Executive Summary

FINDINGS FROM THE TEST DRIVE

TEACHING AND LEARNING

- The laptop computer/wireless program brings great potential for pedagogical change in NSW public schools.
- The use of the laptop computers has the potential to heighten student engagement in their learning and, in some cases, rekindle an interest in and desire to learn in students who have become disengaged.
- The laptops can be used by teachers to accommodate different learning styles and to help students become more autonomous learners.
- The software on the computers is a major key to their success. All of the software on the laptops was utilised at some stage during the test drive. Teachers suggested further software they would like to see installed on the computers. A two week test drive is insufficient to make definitive judgements. A more detailed survey within each Key Learning Area would be needed to delve further into the suitability of every piece of software on the machines and every piece of software that could potentially be added.

PROFESSIONAL LEARNING

- The major professional learning needs of teachers for the successful implementation of the laptop/wireless solution include:
  - time and more time
  - a focus on the pedagogy, not software training
  - a Key Learning Area focus
  - meeting individual needs
  - taking small, achievable steps
- A variety of support materials must be easy to navigate and easily accessible to teachers. These should vary from ideas and scaffolds and “tips and tricks” through to full units of work.
- There should be a variety of delivery methods to take into account individual needs.
- Schools will decide on how to structure their own school based professional learning. Good models for this were suggested.

TEACHERS

- Use of computers in class and at home increased very significantly during the test drive.
- Teachers in the test drive were enthusiastic about the use of the laptops/wireless network in their classes prior to the test drive and continue to be enthusiastic.
- Fewer teachers felt daunted about the coming introduction of the laptops/wireless network solution following their experience in the test drive.
- An urgent review of the DET policy for filtering the internet is essential. Too many educationally useful and valid sites are blocked. This has the potential to discourage the use by teachers of the solution.
- YouTube needs to be unblocked for teachers.
- The white-listing process must be sped up considerably.
STUDENTS

- High levels of home usage of the laptops were reported by students and parents.
- Students and parents reported great benefits from ownership for the whole family, not the least being the decrease in sibling competition for use of the home computer.
- Little can be concluded regarding effects on student attendance from the test drive. However, having the wireless laptop did significantly improve the attendance of at least one chronic truant.
- Researching, creating, interacting and utilising the software enhanced student control over and engagement in their learning.
- Students place high value on their laptops.
- Students valued their laptops so greatly that absenteeism increased significantly on the last day of the trial, presumably so that students could keep them for a further weekend.
- Many factors made the laptops of great value to students.
- The ability to use the computers for social interaction was one of the major reasons for students valuing their computers highly. This was demonstrated by their change in regard for the machines when access to these sites was blocked.
- With such a large investment being made in them, it is important that students value their laptops as highly as possible. As one of the test drive principals put it, “It is critical that students love these laptops; that they feel strong ownership of the laptops, like they own and love their mobile phones if we can achieve that,….laptops being left at home, laptops being broken, laptops being lost, will be reduced”. Access to social interaction sites from home is favoured by 80% of parents surveyed, despite their concern regarding cyber-bullying. Access to social networking and email sites from home would significantly increase the value of the laptop computers to students.
- An urgent review of the DET policy for internet filtering is essential. Too many educationally useful and valid sites are blocked. This has the potential to discourage the use by students of the solution.

PARENTS

- Parents are very positive about the laptops program for many reasons, including because they:
  - enhance student learning
  - include extensive software
  - assist students with their organisation
  - lighten the schoolbag load
  - give their children a sense of ownership
  - provide mobile learning
  - save the family budget
  - give students computer power at home
  - enhance student computer skills
- Parents are concerned regarding the possible demise of handwriting, though many agreed that the computer has overtaken the pen in industry.
- Some parents suggested that students should be able to use their computers for the Higher School Certificate and all other examinations.
- A large majority of parents (72%) agreed that their children were more engaged with their learning when using the laptop.
- While parents favoured filtering of the internet, they
  - reported that genuinely educational sites were being blocked
  - agreed (80%) that social interaction sites should be available from home
- Further information regarding the features of the laptops that make them unattractive to thieves (i.e. Computrace and the ability to remotely turn each laptop into a “brick”), must be disseminated in the school and wider community for the safety of students.

THE TECHNOLOGY
● The following were considered to be good features of the laptop computers:
  o Size
  o Weight
  o Battery life
  o Memory
  o Ease of use
  o Robustness
● Teachers and parents thought speed was good, while students were evenly divided on the issue. However, students did complain about the time it took to log and to load some programs
● The ability of the computers to cope with Adobe Premier Elements and Photoshop was brought into question by some teachers
● The following were considered to be poor features:
  o Screen size
  o Keyboard size
  o Trackpad
● Students seemed to accept that the convenience of small size and weight was of greater importance than size of screen and keyboard. Parent and teachers did not.
● Advice on proper ergonomic use of the laptops is needed urgently. The potential is there for students and teachers to suffer health problems due to the small size of the screen.
● No laptops were stolen
● Only one screen was broken. The metal covers fell off some of the hinges. A case will help to prevent scratching
● Assess and continually improve the networking solution: awaiting information
● Of those with Internet connection at home, 25% of students and 11% of teachers were unable to connect their laptop to the Internet at home.
● The main reason given for being unable to connect to the internet at home were given as
  o Inability to connect to the home wireless network
  o USB modems
  o Dial-up modems
● There are equity issues regarding access to the Internet from home that are beyond the scope of this project. However, where students have internet access at home solutions need to be found so that they can use their laptops
● There were many problems connecting to peripheral devices at home. Many of these problems seemed to come about because of the lack of installed drivers and the fact that drivers could not to be downloaded onto the laptops. Some solution to this problem is needed
● Gather user feedback to guide future iterations of the solution - awaiting information

TECHNICAL SUPPORT
● The training of Technology Support Officers (TSOs) must incorporate information on school life, including:
  o Child protection
  o Code of conduct
  o An induction into the workings and hierarchy of a school
● A more in-depth knowledge and understanding of the solution is required than that given at the induction of the test drive TSOs
● There is a need for an Operational Support Guide
● The TSOs were very heavily involved in the day-to-day use of the devices in the classroom and, for a high proportion of their time, solving issues, specifically around connectivity, directly with the students whilst a lesson was in progress.
● DER-NSW Regional Managers may be required to pool TSO resources between schools for the initial commissioning processes on receipt of laptops
- The TSO position is not a mainly warehousing position, but is characterised by interaction with both students and teachers working to ensure the smooth day to day running of the laptops and wireless infrastructure.
- The ability to work with school students and staff and to solve technical issues with the DER-NSW related infrastructure and learning devices are key skills required.
- Assess the ability of ITD to respond centrally to issues experienced in schools – awaiting information.
## Laptop Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manufacturer</strong></td>
<td>Lenovo</td>
</tr>
<tr>
<td><strong>Model</strong></td>
<td>IdeaPad S10e</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel Atom N270 Single Core (1.6GHz 533 MHz 512KB)</td>
</tr>
<tr>
<td><strong>RAM Memory</strong></td>
<td>2GB PC2-5300 DDR2 SDRAM 667MHz</td>
</tr>
<tr>
<td><strong>Hard Disk</strong></td>
<td>160GB 5400RPM HDD (SATA 2.5)</td>
</tr>
<tr>
<td><strong>Video Circuitry</strong></td>
<td>Intel Graphics Media Accelerator 950</td>
</tr>
<tr>
<td><strong>Screen</strong></td>
<td>10.1 WAVGA, 1024x576 Matte TFT with integrated camera</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>6 Cell Lithium-Ion 2800mAh</td>
</tr>
<tr>
<td><strong>Colour T1</strong></td>
<td>Matte black external, black fascia</td>
</tr>
<tr>
<td><strong>Colour S1</strong></td>
<td>Matte grey or red external, black fascia</td>
</tr>
<tr>
<td><strong>Keyboard</strong></td>
<td>84 Key</td>
</tr>
<tr>
<td><strong>Mouse</strong></td>
<td>2 button trackpad with scroll area</td>
</tr>
<tr>
<td><strong>Fixed Network Connectivity</strong></td>
<td>10/100Mbps RJ45 port</td>
</tr>
<tr>
<td><strong>Wireless Network Connectivity</strong></td>
<td>Intel 802.11a/b/g/n LAN &amp; WAN</td>
</tr>
<tr>
<td><strong>Bluetooth Connectivity</strong></td>
<td>Bluetooth 2.1 + EDR</td>
</tr>
<tr>
<td><strong>3G Connectivity</strong></td>
<td>Included teachers only</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>2x USB2.0</td>
</tr>
<tr>
<td><strong>Other I/O Ports</strong></td>
<td>15pin VGA port, 3.5mm Audio in, 3.5mm Audio out &amp; 4in 1 Multicard reader</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Computrace, RFI, Kensington lock slot</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td>2 year parts &amp; labour including battery</td>
</tr>
</tbody>
</table>
Software

Operating System
Windows 7

Microsoft Office Enterprise 2007 - Productivity Suite
Word Excel Access OneNote PowerPoint Publisher Multilanguage add-in
Word Microsoft Math add-in

Adobe Creativity Suite 4
Acrobat 9 Professional Extended Contribute CS4 Dreamweaver CS4 Fireworks CS4 Flash Professional CS4 Captivate 4 Photoshop Elements 7 Premier Elements 7

Audio Editing
Audacity 1.3

Browser
Microsoft Internet Explorer 8

Plug-ins:
Adobe Flash Adobe Shockwave Java Microsoft Silverlight Apple QuickTime

Interactive Whiteboard Applications
Smart Notebook 10 Smart Recorder Smart Video Player ActivStudio Viewer

Encyclopaedia & Dictionary
Microsoft Student with Encarta Premium 2009

Maths Applications
Microsoft Maths GeoGebra WinKMT Chess

Science Applications
Periodic Table Periodic Table Quiz Earths Core

Musical Applications
LenMus Phonascus MuseScore Notation Player

Art and Design Applications
Google SketchUp 7 ArtRage 2 Starter Edition

Other Learning Tools:

Multimedia
Apple iTunes Windows Media Player CCCP Codec pack
TEST DRIVE EVALUATION STRATEGY

1. Purposes of the evaluation

The purposes of the evaluation are to assess the laptop computers and wireless solution in relation to the following.

1.1. Teaching and Learning
   1.1.1. Assess changes to pedagogy during the test drive
   1.1.2. Assess their usefulness in teaching and learning
   1.1.3. Ability to engage students
   1.1.4. Determine ways the laptops can be used to further benefit student learning
   1.1.5. Assess the software on the laptop computers

1.2. Professional Learning
   1.2.1. Clarify the professional learning need of teachers
   1.2.2. Identify the types of support material needed by teachers
   1.2.3. Reveal possible delivery methods for professional learning to meet local needs
   1.2.4. Possible structure of professional learning in schools

1.3. Teachers
   1.3.1. Assess changes in levels of teacher home access and use of computers for educational purposes brought about by the possession of the laptop computers
   1.3.2. Assess the enthusiasm generated by the use of laptops during the test drive
   1.3.3. Guide decisions on the optimal level of filtering at home and school for teachers

1.4. Student engagement and motivation
   1.4.1. Assess changes in levels of student home access and use of computers brought about by the laptop computers
   1.4.2. Assess changes in attendance of the students involved in the test drive. (Schools to supply data)
   1.4.3. Assess how changes to pedagogy brought about by the solution impact on student engagement
   1.4.4. Determine the factors that make the laptops of value to students
   1.4.5. Guide decisions on the optimal level of filtering at home and at school for students

1.5. Parents
   1.5.1. Assess parental attitudes to the L4L program
   1.5.2. Gain parental perceptions of the influence of the laptop program on their children’s engagement
   1.5.3. Guide decisions on the optimal level of filtering at home and at school for students
   1.5.4. Reveal any issues regarding theft, safety, breakage etc.

1.6. The technology
   1.6.1. Assess the laptop computers in relation to:
       1.6.1.1. Robustness
       1.6.1.2. Processing ability
       1.6.1.3. Memory storage
       1.6.1.4. Speed
       1.6.1.5. Battery Life
       1.6.1.6. Adequacy of screen resolution and size for students and teachers
       1.6.1.7. Adequacy of keyboard and trackpad size for students and teachers
       1.6.1.8. Ease of use
       1.6.1.9. Weight
       1.6.1.10. Theft and breakage levels
   1.6.2. Assess and continually improve the networking solution
   1.6.3. Assess the solution for home computing
   1.6.4. Gather user feedback to guide future iterations of the solution
1.7. Technology Support
   1.7.1. Guide training and selection of Technical Support Officers
   1.7.2. Clarify the role of the TSOs in schools
   1.7.3. Assess the ability of ITD to respond centrally to issues experienced in schools

2. Review methodology:

2.1. Information from students
   2.1.1. Interviews (videoed) at Bathurst Campus before and towards the end of the test drive
   2.1.2. Focus groups with a randomly selected group of students at each test drive school
   2.1.3. A student survey (Zoomerang) emailed to all students with an email address
   2.1.4. Direct observation of students in lessons by L4L staff and teachers

2.2. Information from teachers and school executive
   2.2.1. Teacher evaluation sheets of the Adobe training day
   2.2.2. Teacher evaluation sheets for the school based professional learning days
   2.2.3. Interviews (videoed) at Bathurst Campus before and towards the end of the test drive
   2.2.4. A Professional Learning Community for discussion and feedback active during the Test Drive
   2.2.5. Focus groups with teachers at each test drive school
   2.2.6. A teacher survey (Zoomerang)
   2.2.7. Meetings with school executive

2.3. Information from parents. Parents given the option of providing feedback by one of the following methods (or not at all)
   2.3.1. A parent survey (Zoomerang) – parents asked to provide an email address
   2.3.2. A parent focus group at their school

2.4. Information from Technical Support Officers (TSOs)
   2.4.1. TSO Evaluation sheets of TSO training day
   2.4.2. A daily videoconference
   2.4.3. A debriefing day on Friday 12/6/09

3. Timeline

<table>
<thead>
<tr>
<th>Test Drive Events</th>
<th>Dates</th>
<th>Evaluation Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSO Training</td>
<td>15/5/09</td>
<td>Evaluation sheets</td>
</tr>
<tr>
<td>Adobe Training Day (Teachers)</td>
<td>18/5/09</td>
<td>Evaluation sheets</td>
</tr>
<tr>
<td>Networks in schools completed</td>
<td></td>
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<tr>
<td>Laptops delivered to schools</td>
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<tr>
<td>School Based Professional</td>
<td>Bathurst Campus 20/5/09</td>
<td>Video interviews at Bathurst</td>
</tr>
<tr>
<td>Learning Days</td>
<td>Arthur Phillip 21/5/09</td>
<td>Evaluation sheets</td>
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<td></td>
<td>Cherrybrook 22/5/09</td>
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<tr>
<td>Test Drive</td>
<td>25/5/09 to 5/6/09</td>
<td>Student Journal</td>
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<td>Teacher Professional Learning Community</td>
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<td>Video interviews at Bathurst on 4/6/09</td>
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<td></td>
<td></td>
<td>L4L team visits</td>
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<td></td>
<td></td>
<td>TSO daily conferences</td>
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<tr>
<td>Student Survey</td>
<td>4/6/09</td>
<td>On-line survey of all students</td>
</tr>
<tr>
<td>Parent Survey</td>
<td>Survey open for responses 9/6/09 to 15/6/09</td>
<td>On-line survey of parents who volunteered to do so</td>
</tr>
<tr>
<td>Teacher Survey</td>
<td>Survey open for responses 9/6/09 to 15/6/09</td>
<td>On-line survey of all teachers involved in the trial</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>Bathurst campus 9/6/09</td>
<td>Student, parent, teacher and executive focus groups</td>
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<tr>
<td></td>
<td>Arthur Phillip 10/6/09</td>
<td>Parent focus groups</td>
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<td></td>
<td>2.30 pm</td>
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<td></td>
<td>Cherrybrook 10/6/09</td>
<td>Parent focus groups</td>
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<tr>
<td></td>
<td>7.30 pm</td>
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<td></td>
<td>Arthur Phillip 11/6/09</td>
<td>Teacher and student focus groups</td>
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<tr>
<td></td>
<td>12/6/09</td>
<td>Technical Support Officer Debriefing Day</td>
</tr>
<tr>
<td></td>
<td>Cherrybrook 15/6/09</td>
<td>Teacher, executive and student focus groups</td>
</tr>
</tbody>
</table>

| Completion of Evaluation Report | Friday 3/7/09 |

4. Evaluation outputs and report
   4.1. Constant feedback from the TSOs and teachers will bring about improvements in the solution as it is implemented.
   4.2. Weekly updates will be provided to the Director
   4.3. The report will be completed by Friday, 3/7/09
1.1 EVALUATION AREA: TEACHING AND LEARNING

1.1.1 Changes to Pedagogy

There was considerable evidence of change to teaching practice during the test drive. This was hardly surprising as the teachers involved were encouraged to try new approaches and had assistance at professional learning days held at their schools prior to the test drive to plan their lessons for the two week period.

Students participants reported that, prior to the test drive, 37% used computers in classes once per month or less. During the test drive 63% used the laptop in every lesson where everyone had a laptop with a further 25% reporting use in almost every lesson. 77% of student respondents to the survey agreed or strongly agreed that using the laptops/wireless network made learning more interesting. When asked why, their responses indicated activities such as in class internet research, use of avatars, use of Photoshop and Adobe Premier, use of web cams, use of the virtual classroom and many other features of the laptops which were not available to teachers and students prior to the test drive.

In their survey and in focus groups, teachers commented on changes to the way they were teaching. 69% reported that they used computers once per month or less in their classes prior to the test drive. During the test drive, 79% of teachers reported using the laptops in every Year 9 lesson.

The teachers’ extensive use of software during the test drive also indicates a change in pedagogy. Teacher comments during focus groups and on the test drive teachers’ professional learning community forum illustrate some changes that took place:

“Enable us to shift from teachers to being learning guides. …… Allow us to have a bit of a step back, which is not such a bad thing. Students can become self-directed, empowered.”

“Certainly the variety of lessons that you can do is fantastic. Not only variety, but doing the same thing but in different ways. Like the prac write ups. The kids are now embedding video of them doing the prac work in the actual prac write-up. So they’ve now got the document with the text as well as the little video screen that they can actually play to watch themselves doing the prac. Then today we did a session where half were extracting red cabbage and testing via the different solutions, so the colour development appears on video as well. That I can see – prac write-ups in
particular being a big ongoing thing, that the kids can actually get a big multimedia prac write-up. So I like it.”

“Just had a really successful dance lesson. Students learnt some basic ballet exercises and then filmed themselves in Premier using webcam. They added titles for each exercise and will now imbed these files into OneNote or a PDF portfolio to make a Ballet glossary. They really liked it!! Some did group shots, others did solos”

“Back to student-centred workstation. Getting languages, lots of skills, letting kids learn at their own pace, during lessons. It works for me, languages. Started to do all the things we’ve lost over last 10/15 years in my KLA”

In the teacher survey, the best lessons teachers described invariably involved students-centred learning with a variety of activates, often incorporating students collaborating, researching, making videos and coming up with a final product that was much more sophisticated and media rich than anything they were able to do without the laptops. These lessons engaged students and were spread across the key learning areas.

Several comments similar to the following were made:

“Students can become more autonomous learners constructing their own understanding”

Few felt that they will change the arrangement of their rooms.

Students also commented on the different ways they learnt during the test drive, many commenting that it was more “fun” and “interesting”. When asked to describe their most interesting lessons using the features of the laptops, the software and webcams featured prominently. Still others found that the change to learning was the most important feature of the laptop, as seen by the following student comments:

“There was so much we could do in lessons that we could not do before.”

“We can learn in our way if the teacher's style doesn’t suit us”.

“We can go off on tangents and investigate on our own initiative”

“Kind of changed my headspace to learning – it made me enjoy some of my subjects I previously hated”

“...how much it innovated my learning – a powerful learning tool that changed the way I did things at school”

“I liked how we used the laptops and share ideas and thoughts about them”

“... much better way to learn”

“New way to present work yourself; share ideas/thoughts”

“You can take learning to a whole new level – there is information a click away”

“We can do a wide range of things on the laptops and access heaps of information rather than borrowing a laptop or doing it at home, we can do it anywhere. We can also have classes through the webcam and have connect sessions which makes lessons fun and we can share ideas through different classes”

“….. there are a lot of creative applications to use for learning and it gives you a better understanding of your work”

As one of the test drive school principals put it:
“We’ve been running with the laptops now for two weeks and what I’ve seen is the laptops really have an ability to make a difference to student learning. I always thought that that would be the case but the trial has reinforced that. If we do it right, then we can really change teaching and learning.”

1.1.2 Usefulness in Teaching and Learning

The utility of the laptops was commented upon many times, both in the surveys and the focus groups. For example, some teacher comments:

“I guess the thing I was impressed with was wireless for science. Imagine having 30 little machines to have to plug in and whatever. It’s good because of flexibility in the classroom”

“Best thing I found, first of all, the range of software”

Students made many comments on their usefulness in different subjects and overall:

“It made everything faster and easier and its way more convenient”

“It’s faster for doing your work and it is lighter than the books that we carry in our bags”

OneNote in particular was mentioned by many students and teachers as being very useful.

1.1.3 Ability to Engage Students

Engagement in learning scored more comments than anything else. 85% of teachers who responded to the survey agreed or strongly agreed that the laptops/wireless network had a positive effect on student engagement and motivation.

Below are a sample of responses in teacher focus groups to the question “what was the best thing about the laptops?”

“Engagement. In a word, engagement. Kids couldn’t help it, just go for it.”

“Actually excited to get work out, get work done. Never seen it before. And they were a laptop class beforehand.”

“Engagement, classroom management. They were more ordered, structured in doing the work, .... Low functioning class, did better with laptops than books. “

“Engagement. Student motivation and enthusiasm towards doing the activities. Exciting and easy.”

“Children engaged and occupied .... there was silence. You could hear the keyboards tapping away, but that is really rare for my class”

“I think one of the things that’s been really powerful is one of our students who in the past has had truancy issues. A school refuser. She was actually in lunchtime seen
by staff, sitting out here, we all know who I’m talking about. And they went up to see her because she was sitting hunched over like this, and they thought that maybe she was upset or something was wrong. In fact, in her lunchtime, she’d found a quiet spot in the playground away from everybody and she was working on her laptop.”

“A girl we have has been truanting up to the laptops. Yet during the trial, she was not so much in our face. She wasn’t. She was in class doing the right thing. The day we took Steven Wilson around he actually spoke to her, had a lengthy conversation about her learning, laptop, whole lot. Just proved that to me was one of the huge successes. Someone who was disengaged, with some ability, but for two weeks she turned around - worked for the first time this year.”

No teachers commented on a lack of engagement, though many commented about the laptops providing a distraction at times, particularly when they needed the full attention of the class. Of the respondents, only 26% agreed that the “laptops ajar” instruction was effective in gaining student attention. There was discussion about changes of classroom management practice to ensure that teachers could see what was on student screens, including placing the teacher at the back of the room when the students were working on the laptops. One group of teachers asked students to turn their computers through 180 degrees so that the students were unable to view the screen when the teachers needed to speak to the class. Many teachers asked for a software solution that enabled them to see on their screen the screens of the class, both so that they could ensure that students were on task and so that they were able to direct assistance to those who needed it.

Of student respondents, 77% agreed or strongly agreed that having the laptops and using the laptops/wireless network made learning more interesting.

<table>
<thead>
<tr>
<th>20. To what extent do you agree that having the laptops and using the laptops/wireless network made learning more interesting?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Unsure</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Over half of the student respondents agree or strongly agree that having the laptops made them feel more excited about coming to school.

<table>
<thead>
<tr>
<th>22. To what extent do you agree that having the laptops made you feel more excited about coming to school?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Unsure</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

In order to see if the laptops would continue to engage the students, they were asked how they felt about getting the laptop prior to the test drive and how they now felt about getting their own laptop later in the year.
As can be seen, there was a drop in excitement levels even over the short period of the test drive, though levels remained high.

1.1.4 Determine ways the laptops can be used to further benefit student learning

Teachers commented on many different types of lessons they successfully conducted using the laptops in each key learning area. Broadly speaking, the best lessons were those which utilised the computers, the network and the software in ways that engaged students in student-centred learning activities often incorporating collaboration, research, making videos and coming up with a final product that was much more sophisticated and media rich than anything they were able to do without the laptops. Section 1.1.1 of this evaluation covers changes to pedagogy teachers envisage.

The following table summarises teacher responses to survey question 28

28. With your experience during the laptop test drive, how do you think the use of the laptop/wireless solution is going to change the way you teach and the way you arrange students in your classroom?

<table>
<thead>
<tr>
<th>Change to teaching</th>
<th>No. of similar responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>More collaborative work – use of forums and chat to brainstorm ideas</td>
<td>2</td>
</tr>
<tr>
<td>Less paper</td>
<td>4</td>
</tr>
<tr>
<td>Students can become more autonomous learners constructing their own understanding</td>
<td>4</td>
</tr>
<tr>
<td>Teachers can accommodate different learning styles</td>
<td>3</td>
</tr>
<tr>
<td>More publication of students’ work</td>
<td>1</td>
</tr>
<tr>
<td>More opportunity to experiment with ideas and get quick feedback</td>
<td>1</td>
</tr>
<tr>
<td>“To start with maybe only in small ways. Over time it may well change things quite a bit.”</td>
<td>1</td>
</tr>
<tr>
<td>With no need to book into the computer room for research, some lessons can be more spontaneous</td>
<td>1</td>
</tr>
<tr>
<td>More development of resources on the school Moodle</td>
<td>2</td>
</tr>
</tbody>
</table>

When asked about the future of learning using the laptops in focus groups, many different opportunities were cited. For example:

“The teacher doesn’t have to teach everybody the same way in the classroom. With this, kids have got the opportunity to learn by their best learning style. ….. We do think there’s all these different types of learners, but how often do we actually cater for all their needs in one lesson?”
“Well, I mean, pedagogy’s changing now. I mean the fact we’re doing online blogging in a classroom, so that there is immediate feedback, that students are immediately expressing opinion rather than “Hands up,”…. That is pedagogy changing.”

1.1.5 Assess the software on the laptop computers

The software was seen by many as the most significant and successful feature of the laptops. In focus groups in each of the three schools, students cited the software as the best thing about having the laptops.

The following shows the software used by students during the test drive.

As can be seen, all of the software on the computer was used.

Teachers who responded to the survey found Microsoft OneNote the most successfully used piece of software on the computer, followed by Adobe Premier Elements, Adobe Acrobat, Microsoft Word, Adobe Photoshop Elements, Adobe Presenter and Microsoft.
Excel. Most of the software was used at some stage by teachers. Explorer was used extensively for internet access with many teachers accessing learning materials they or others had already developed and placed on the school Moodle.

A two week test drive is insufficient to make definitive judgements. A more detailed survey of the software with specific Key Learning Area groups would be needed to delve further into the suitability of every piece of software. However, when asked in question 14 of the survey, teachers made requests for other software to be included on the laptops as follows:

14. What software, not present on the test drive computers, would you like to see added to them? Please supply your reasons.

<table>
<thead>
<tr>
<th>Software</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid Express of similar for music sequencing</td>
<td>1</td>
</tr>
<tr>
<td>Kahootz for voice recording in French</td>
<td>1</td>
</tr>
<tr>
<td>A simpler video making program than Premier</td>
<td>2</td>
</tr>
<tr>
<td>Cam Studio – simpler than Captivate</td>
<td>1</td>
</tr>
<tr>
<td>Browser plug-ins such as Flash downloader in IE to allow teachers/students to download flash files</td>
<td>1</td>
</tr>
<tr>
<td>Microsoft Outlook – as an electronic diary for students</td>
<td>2</td>
</tr>
<tr>
<td>Photostory 3</td>
<td>1</td>
</tr>
<tr>
<td>Microsoft Groove for working on group projects</td>
<td>1</td>
</tr>
<tr>
<td>Software to allow easy delivery of lesson materials to students. Currently using the school Moodle</td>
<td>2</td>
</tr>
<tr>
<td>Sunbird, a cross platform calendar, to alert students re tasks/events/etc.</td>
<td>1</td>
</tr>
<tr>
<td>Method of allowing students to upload to teacher computers via Bluetooth</td>
<td>1</td>
</tr>
<tr>
<td>“Computer management software for supervision and ability to display student screens to groups in class and have easier chat sessions with individual students as required.”</td>
<td>1</td>
</tr>
<tr>
<td>Some basic curriculum based games that can be used as “rewards”</td>
<td>1</td>
</tr>
<tr>
<td>NRMA Shift for road safety PDHPE</td>
<td>1</td>
</tr>
<tr>
<td>Underground for sexual behaviour PDHPE</td>
<td>1</td>
</tr>
<tr>
<td>Fitnessgram for measuring fitness PDHPE</td>
<td>1</td>
</tr>
<tr>
<td>Windows Movie Maker or similar basic video editing program.</td>
<td>1</td>
</tr>
<tr>
<td>Efofx for typing of maths equation, graphing, drawing and solving statistical problems in one package.</td>
<td>1</td>
</tr>
<tr>
<td>Real time player</td>
<td>1</td>
</tr>
</tbody>
</table>

CONCLUSIONS - TEACHING AND LEARNING EVALUATION AREA

The laptop computer/wireless program brings great potential for pedagogical change in NSW public schools. The laptop computers will prove to be very useful in teaching and learning. The use of the laptop computers has the potential to heighten student engagement in their learning and, in some cases, rekindle an interest in and desire to learn in students who have become disengaged. The laptops can be used by teachers to accommodate different learning styles and to help students become more autonomous learners. The software on the computers is a major key to their success. All of the software on the laptops was utilised at some stage during the test drive. Teachers suggested further software they would like to see installed on the computers. A two week test drive is insufficient to make definitive
judgements. A more detailed survey within each Key Learning Area would be needed to delve further into the suitability of every piece of software on the machines and every piece of software that could potentially be added.
1.2 EVALUATION AREA: PROFESSIONAL LEARNING

1.2.1 Clarify the professional learning needs of teachers

Time was identified in both teacher and executive focus groups as the main need.

Comments included:

“Time. Always time”

“Time. Having development and training, then time, not in isolation- with your faculty to take on the technology rapidly”

“Time, that’s it. You look at the last two weeks, we’ve been pretty flat out in the program in one form or another, but we have deliberately spent or tried to spend time looking at the software within just the small group we’re working in.”

“We want to be able to give teachers time to explore/ work with groups of kids and look at how their programs can be enhanced. The relief days for the trial enabled our teachers to experiment – one teacher has produced a lot of Contribute ‘how to’ demonstrations for her class”

Teachers and school executive could see no point in training everyone in the use of all of the software on the computer:

“I think what’s important is that we don’t think that it has to be all about learning how to use a piece of software. The last thing I would think we would want to do is structure professional development about today – today we’re going to learn how to use Adobe Elements, tomorrow we’re going to learn how to print out. We’re going to look at how we can implement technology into a quality teaching framework.”

On Monday 18th May 2009, in the week prior to the test drive, a training day facilitated by a trainer from Adobe was held at North Sydney College of TAFE on the Adobe software on the laptops. This was attended by seventeen of the teachers involved in the test drive. The evaluations of the day were very positive as can be seen in the table below:
Howevever, the comments made in the evaluations were full of praise for the session, some of the comments made by participants were later echoed in teacher focus groups following the trial. For example:

“…but obviously too difficult to learn heaps in a short time. I think as long as we encourage staff to focus on an area that they can achieve success in, the test drive will succeed.”

“Wow! I aim to keep it pretty simple and achievable to begin with. A good day! Thanks”

“I will only focus on those applications I need for the trial at this stage -- overwhelming amount to learn! It seems very exciting”.

Keeping it achievable was already emerging as an important factor in planning professional learning.

A teacher professional learning day was held at each school in the week prior to the test drive, starting with Bathurst Campus of Denison College on Wednesday 22/5/09, then Arthur Phillip High School and Cherrybrook Technology High School on subsequent days. The following table sets out the combined evaluation scores from the three schools. During the session "planning for the test drive", which took up most of the day, those teachers who were going to be using the laptops in their classes were supported by relevant curriculum experts from Curriculum K-12.
The following met my needs:

<table>
<thead>
<tr>
<th>Session</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview of programs on laptop</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Word 7 transition</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Windows 7 Tips and Tricks</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Windows 7 Microsoft &quot;One Note&quot;</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Teaching resources available and integrating laptops and learning</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Setting the task for the rest of the day</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Planning for the test drive (for those teaching classes fully supplied with laptops)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>20</td>
<td>9</td>
</tr>
</tbody>
</table>

OR

| Using laptops in learning (for other teachers with laptops)            | 1 | 1 | 3 | 7 | 4 |
| Plenary, issues resolution, evaluation                                 |   |   | 3 | 9 | 2 |

As can be seen, the session that scored the highest was the session in which teachers were given time and support to carry out their planning, further reinforcing the conclusions drawn from the focus groups.

It is clear from the focus group feedback and the evaluations of the professional learning sessions that were given to teachers involved in the test drive that, aside from time, the needs of all teachers will be different, depending on their technical competence and confidence, their key learning area, the nature of their students and the faculty teaching program. Within that large envelope, there were calls for:

- Some notion of what each of the pieces of software can be used to achieve
- KLA focus very important - KLA specific tasks that teachers can adapt for their classes
- Needs driven professional learning
- Flexibility to meet individual needs
- Explicit teaching resources with specific steps
- Professional conversations
- Ongoing resource developed by and shared between schools
- On-line forums
- “What to do on day one” assistance
- An easily accessible support person to help teachers when they need to use a new piece of software. “Staff don’t want to sit down ½ hour to define something in their software. Don’t have the time to do that. Want to be able to do is just go ask someone, show in 5min go back finish off their lesson. You can’t expect staff prepare lesson to get online info, in a forum. In reality they can ask someone.”

1.2.2 Identify the types of support material needed by teachers

The Teaching and Learning Exchange received mixed reviews. Some found the materials useful, while others were critical. There was criticism surrounding navigation of the TaLE site, several saying how difficult it was to find suitable resources.
During the test drive many teachers used resources developed by Curriculum K-12 to great effect while others were critical and did not use the resources at all.

As well as those in the list in section 1.2.1 above, support materials suggested included:
- YouTube, as there are many good resources there.
- “Two minute tips and tricks, just enough to keep you progressing and developing.”
- Ideas and scaffolds for lessons and units

1.2.3 Reveal possible delivery methods for professional learning to meet local needs

“Just-in-time” learning was called for many times. Teachers want to be able to access the information when they need it.

Delivery methods suggested included:
- On-line tutorials on the software. These need to be pitched at different skill-levels and clearly labelled
- Step-by-step lessons with how-to videos
- Mentors
- Experts in schools
- Action research

1.2.4 Possible structure of professional learning in schools

Schools will ultimately decide how they structure professional learning within their schools. When asked about this, some responses from principals and executive were:

“Professional learning needs to encourage small/baby steps for some staff. Give them some small wins and successes with their current strengths and teaching programs. Encourage and highlight all successful uses of the laptops - from the first timers to the high flyers. Don’t expect everyone to be Adobe experts!”

“Pretty much what we do. Time, supporting them programs. Sit along-side them. What do you want to achieve. They know the goals, where they’re going. Essentially give them solutions how to achieve them.”

“Allowing small steps, small successes. Allow highflying staff to go do. Learning community, share. Support everyone.”

“Incremental targets. Don’t expect revolution, expect evolution”

It was suggested several times that the best approach will be to look at the educational programs already running in Year 9 and use the technology where it can be used to best enhance learning. Programs will, over time, be modified to take advantage of more and more of the benefits the laptop offers.

CONCLUSIONS - PROFESSIONAL LEARNING EVALUATION AREA

The major professional learning needs of teachers for the successful implementation of the laptop/wireless solution include:
- time and more time
- a focus on the pedagogy, not software training
- a Key Learning Area focus
- meeting individual needs
- taking small, achievable steps
A variety of support materials must be easy to navigate and easily accessible to teachers. These should vary from ideas and scaffolds and “tips and tricks” through to full units of work. There should also be a variety of delivery methods to take into account individual needs. Schools will decide on how to structure their own school based professional learning. Good models for this were suggested.
1.3 EVALUATION AREA: TEACHERS

1.3.1 Assess changes in levels of teacher home access and use of computers for educational purposes brought about by the possession of the laptop computers

All of the teachers involved in the test drive who responded to the survey indicated that they already had computers at home. 94% indicated that they had internet access from home.

The answers to the following questions in the teacher survey clearly show the marked change in computer use for educational purposes by the teachers involved in the test drive:

| How often did you use computers with your classes before you received the laptops for the test drive? |
| How often did you use the laptops with your classes during the test drive? |
| Planning and preparing lessons |
| Emailing lesson materials to students |
| Viewing/preparing materials on the school mass mail server |
| Receiving emails from students |
| Adobe Connect sessions |
| Searching/browsing the Internet |
| Viewing tutorials on the use of the software |
| Personal business or emailing |
| Other, please specify |

The laptops were also used extensively by the teachers for educational purposes when out of class or at home:

Clearly, while many teachers did have their own computer and internet access, the laptop computers brought enormous changes to their use of computer technology both in and out of class.

1.3.2 Assess the enthusiasm generated by the use of laptops during the test drive

Teachers were excited to be involved in the test drive. Furthermore, the confidence of the teachers involved grew, as can be seen in the answers to the following questions in the teacher survey:
While the number of teachers excited by the prospect has decreased slightly, the number looking forward to the advent of the computer roll-out has increased significantly and the percentage finding the prospect daunting or very daunting has dropped from 12% to 3%.

The excitement sometimes extended to those not involved in the trial, as can be seen from this comment posted by a test drive teacher onto the professional learning community website set up for test drive teachers:

“I have had other teachers pinch the laptop for a while and then get super excited. Lote teacher was particularly excited about the audio, video and language settings. Great to see an infectious good vibe going on!”

Some reasons given for teacher excitement were:

“Being able to use computers as a tool to be creative in classes”,

“Endless possibilities”

“Really felt that we could change the way we teach and making learning more meaningful to students”.

“Anything that helped to sustain student interest is gratefully accepted”

1.3.3 Guide decisions on the optimal level of filtering at home and school for teachers

Many teachers complained about YouTube being blocked by the filtering both at home and school. They complained that, not only did the filtering block their access to some excellent educational videos, it also blocked access to some tutorials on the use of the software on the computers.

Teachers also complained that the level of filtering interfered with their lessons:
Ancient human remains sites
Adobe tutorials
YouTube (mentioned by five respondents)
Flickr
www.likeitis.com.au
Cows eye dissection at
http://www.exploratorium.edu/learning_studio/cow_eye/step01.html

One respondent mentioned requesting to have a site unblocked but that the time delay between planning lessons and the unblocking occurring was too great.

Another made the point that: “There will be much time wasted in lesson planning if innocuous sites are blocked. English is about a variety of texts. If authentic texts are blocked then the effectiveness of the laptops is diminished.” This may have the effect of discouraging the use of the solution.

**CONCLUSION: TEACHERS EVALUATION AREA**

Use of computers in class and at home increased very significantly during the test drive

Teachers in the test drive were enthusiastic about the use of the laptops/wireless network in their classes prior to the test drive and continue to be enthusiastic

Fewer teachers felt daunted about the coming introduction of the laps/network solution following their experience in the test drive.

An urgent review of the DET policy for blocking sites is essential. Too many educationally useful and valid sites are blocked. This has the potential to discourage the use by teachers of the solution.

YouTube needs to be unblocked for teachers

The white-listing process must be sped up considerably.
1.4 EVALUATION AREA: STUDENT ENGAGEMENT AND MOTIVATION

1.4.1 Assess changes in levels of student home access and use of computers brought about by the laptop computers

While 96% of students responding to the survey reported they had a computer at home, only 64% had their own computer:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>64%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Due to the roll-out of laptops to each year 9 student this will rise to 100%.

This will have a major effect. As parents in focus groups put it:

“… 6 children and 2 computers at the moment…… Really excited because he got his computer because he got to go to his room and do his thing. Gave something his own”

“Advantages for the whole family. Only have one, having another one a good thing for him.”

“Didn’t have to compete for time”

Several students reported that they no longer had to fight with siblings for access to the home computer to do their homework and assignments. For example:

“I don’t have to fight with my siblings over the use of the desktop for homework”

Some noted that they could stop pestering their parents to buy them one:

“I have a laptop and I don’t have to bug my parents give me a laptop”

The enormous increase in use of computers in class during the test drive has been discussed in the sections above. High levels of use at home were also reported by students and parents. The student survey reveals uses the computers were put to when not in class:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>126</td>
<td>84%</td>
</tr>
<tr>
<td>Homework</td>
<td>38</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>99</td>
<td>61%</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>122</td>
<td>73%</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>58</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>30%</td>
</tr>
<tr>
<td>Other, please specify View Responses</td>
<td>35</td>
<td>22%</td>
</tr>
</tbody>
</table>

1.4.2 Assess changes in attendance of the students involved in the test drive.
In order to make comparisons, each school was asked for the total number of absences for the group of students given the laptops for the following periods:

- A nine day period several weeks prior to the test drive (the 9 day period Monday 4/5/09 to Thursday 14/5/09)
- The first 9 days of the test drive (The 9 day period Monday 25/5/09 to Thursday 4/6/09)
- A Friday several weeks prior to the test drive (Friday 15/5/09)
- The day on which the laptops were to be returned (Friday 5/6/09)

<table>
<thead>
<tr>
<th></th>
<th>Cherrybrook THS</th>
<th>Arthur Phillip HS</th>
<th>Bathurst Secondary Campus of Denison College</th>
</tr>
</thead>
<tbody>
<tr>
<td>% increase/decrease in total</td>
<td>0%</td>
<td>+14.3%</td>
<td>Awaiting information</td>
</tr>
<tr>
<td>absenteeism between comparable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>period in early May and the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Drive period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% increase/decrease in total</td>
<td>+125%</td>
<td>+116.7%</td>
<td>Awaiting information</td>
</tr>
<tr>
<td>absenteeism between Friday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15/5/09 and Friday 5/6/09 (the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>day the laptops were to be</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>returned)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Increase in winter illnesses is the most likely explanation for the slight increase absenteeism during the period of the test drive. The most significant figures in the tables above are the increase in the % of absenteeism on Friday 5/6/09 (the day the laptops were to be returned). The explanation for this has to be that the students enjoyed having them so much they were loath to hand them back. By absenting themselves they got to keep them for another weekend.

At one of the test drive schools, a student who was a chronic truant not only turned up on every day of the test drive in full school uniform, she attended fully from the moment she learnt she was to get a laptop so as not to put her place in the test drive in jeopardy.

1.4.3 Assess how changes to pedagogy brought about by the solution impact on student engagement.

It is clear that the use of laptops in classes and the changes this brought about to pedagogy was very successful in engaging students. While this was covered extensively in Section 1.3 Ability to engage students, some further analysis from the student point of view will be undertaken here.

When asked in focus groups to describe their favourite lessons or series of lessons, nearly all subject areas were mentioned. The common features of lessons they cited were that they were researching, interacting, creating and using software. They clearly felt more in control of their own learning. “Not listening to the boring teacher” was one student’s comment. Instead they reported that they were:

- making videos
- researching, designing and producing very professional looking magazine covers in English
- using avatars in English
- creating web sites in History
- finding answers to questions on the internet in History
- enjoying Mathletics in Maths
• using Excel in Maths
• recording their own French conversations
• videoing their dance steps
• enhancing pictures in Photoshop
• creating animations
• making video and still recordings of science practical work
• working with a green screen to produce digital background to video
• typing their notes into OneNote (which automatically saves)
• completing media rich assignments
• typing quickly rather than writing slowly and illegibly
• etc.

Some students reported that this changed their attitudes to some of their subjects, subjects they previously disliked. The following are typical of student comments and illustrate the degree of engagement brought about by the wireless laptops:

“IT made you want to work”
“IT just made me feel more on task and wanting to complete work”
“I wondered in what new ways we would use them in class”
“School was boring before we got the laptops. Now we got to do new and more exciting things”
“Classes became more ‘interactive’ - everyone seemed more keen to get started with each lessons and learning became more fun.”
“We have this great new resource and I didn't want to miss out on one day of using it”
“…I was excited to do my work”

All of the evidence points to a very large and positive change in student engagement with their learning.

1.4.4 Determine the factors that make the laptops of value to students.

There can be no doubt that students valued their laptops highly. Parents at focus group meetings made the following observations:

“He would have taken it to bed. He dumped the PC in his room”
“She was on it all the time, loved it. I hope she was doing work. Took it with her.”

Typical student comments about the laptops were:

“They are cool and I want them back sooner”
“Can we keep these trial (computers) forever?”
“It's very cute and interesting”
“It's pretty sexy”
“…..an awesome little portable computer to learn with, listen to music, keep my file and do research on”.
“It mini! And cute! I liked being able to personalize my desktop :) :)”

At one of the student focus groups, when asked what she best liked about the laptop, one student replied “everything”.

Laptops Test Drive Evaluation Page 31
During the test drive, none of the 270 student laptops were lost and there was only one breakage (a screen). 71% of the students individualised their laptops by adding stickers and/or changing the background, often by using one of their own photographs which they sent to the laptop by Bluetooth from their mobile phone.

On the day the laptops were to be given back, absenteeism was higher than at any time during the test drive, presumably so that the students could keep them for one more weekend.

The students, when asked in focus groups what they enjoyed most about having the laptops, placed high value on the software, the size and convenience ("easier to carry than all my books"), how they found it more enjoyable to do their assignments and their school work and how they changed learning. They also valued having a computer that they "owned" greatly.

The social interaction capabilities of the computers clearly stood out for many of the students, as was discovered when these sites were blocked. During the first week of the test drive, students were able to access social interaction sites such as Facebook and Bebo, as well as hotmail and other email sites, from home. When it was discovered that this was the case, access to these sites was cut off. This had a significant effect on the way many students felt about their laptops, as can be seen in these comments from the student focus groups:

"Angry when it stopped. Very angry."
"I didn't love the laptop as much"
"Want it back on? Yes. Okay if it's at home, not at school."
"It's our own internet at home. We expected it to not be blocked"
"Hotmail – I did my assignment, but couldn't send it to my sister who usually prints it."
"I stopped using it when the internet was blocked."
"It really helps with learning too. Stuff like sometimes you can talk to, say, your teachers and things and they can give you work and you can make sure...."
"Well, because usually I've got a computer in my room but it died before I got the laptop so I was using my laptop for everything that I had been using my computer for and so then when, you know, most of the stuff was blocked, I couldn't do any of that anymore".

Others, when asked how they felt about their laptops following the blocking of the social networking sites, stated:
"They were okay"
"They were less exciting."
"They got kind of boring."
"It wasn't as exciting"
"I didn't use it."
"I stopped using it at home."
"Yeah I stopped using it as much."
"I could use my laptop for pretty much everything and then when it was blocked I pretty much just put it on my bed and then went over to the home computer."
"I didn't use the internet at all in the second week of the trial once everything had been blocked. I used to use it like every day."
There was also much comment in the student responses to the survey on this issue. Students were concerned that they weren’t able to communicate with their friends and that, at home, their access through their own internet connection was being blocked to sites that they valued. The open ended questions 29, 30, 32, 34 and 35 all elicited a large number of responses calling of the sites to be unblocked at home.

Parents also noticed the change in the way students valued their laptops once the social interaction sites were blocked. The following are statements from parent focus groups:

“Kids didn’t feel the same once it was blocked”

“Having access to Facebook, etc, she was rapt about that. Didn’t enjoy it being switched. No huge drama, since we have internet at home. She didn’t use it as much the second week.”

This is clearly an important issue to students and, if not addressed, may see the laptop computers being of less value to the students than the DET would wish. With such a large investment being made in them, it is important that students value their laptops as highly as possible. As one of the test drive principals put it:

“It is critical that students love these laptops; that they feel strong ownership of the laptops, like they own and love their mobile phones. If we can achieve that, laptops being left at home, laptops being broken, laptops being lost, will be reduced”.

1.4.5 Guide decisions on the optimal level of filtering at home and at school for students

Social Interaction Sites

The analysis in Section 1.4.4 establishes the importance of these sites to students and to their valuing of their laptop computers.

Parents were asked to comment on this in their survey. 74% believe that they should be given access to these sites from home but not school, with a further 6% believing that they should have access at home and school. Only 20% believe that should have no access:

Parents were evenly divided on whether or not access to these sites would cause their children to value the laptops more. However, nearly half thought that they would:

Parent comments varied from:

“access to social interaction web sites will cause my child to value his laptop computer”,

Laptops Test Drive Evaluation Page 33
“Perhaps the computers can be fixed with "Facebook" hours per week to limit time spent”
and:
“I think the social networking sites must be limited or not accessible at all”

Parents are aware of cyber bullying and are concerned, as can be seen in their responses to question 16 in the survey, but this has not stopped the vast majority from favouring access to social interaction sites for their children.

### Question 16

<table>
<thead>
<tr>
<th>Level of Concern</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Concerned</td>
<td>10 (14%)</td>
</tr>
<tr>
<td>Mildly concerned</td>
<td>31 (45%)</td>
</tr>
<tr>
<td>Concerned</td>
<td>14 (20%)</td>
</tr>
<tr>
<td>Very concerned</td>
<td>14 (20%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69 (100%)</strong></td>
</tr>
</tbody>
</table>

Teachers also commented on the change in attitude of some students to their laptops following the blocking of the sites. One Deputy Principal observed that they have measures in place to deal with cyber bullying within their discipline policy. Parents at focus groups accepted that cyber bullying will occur. One whose child had suffered cyber bullying in the past still insisted that the social networking sites be unblocked.

### Other Sites

Of the student respondents, 63% reported that the level of filtering they experienced during the test drive interfered with lesson or assignment work.

### Question 24

<table>
<thead>
<tr>
<th>Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>107 (63%)</td>
</tr>
<tr>
<td>No</td>
<td>63 (37%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>170 (100%)</strong></td>
</tr>
</tbody>
</table>

This is a very large proportion. It was the cause of a great deal of frustration for students and teachers. Typical responses to the survey from students were:

“there were too many sites which were blocked to name and some sites were blocked which our teachers asked us to view.”

“I cannot name any specific sites but I know that when I was doing research for a history assignment there were a lot of sites blocked for no reason and it became very difficult to get the information I needed. When I went on those sites on my home computer where they were not blocked I found that there was nothing bad about them, they had good information and were very useful. It makes it hard to do research when there are a lot of blocked sites.”

“YouTube is such a useful resource. In science, we tried to find footage of the damage a hurricane could do, and YouTube was blocked.”

“I was unable to access my school emails at home when I needed to email my teachers my work”

“Some information websites and many Google images searches limited me with the amount of images I was able to use”
“There are too many blocked sites that make it hard to search for images on Google or flickr.com. They were important as when we have visual arts it can be hard to find good high quality large pictures.”

There were also complaints about being unable to access the Bathurst Campus web site and many others. If nothing is done about this, the value of the laptops as a research tool will be considerably diminished.

CONCLUSIONS: STUDENTS EVALUATION AREA

High levels of home usage of the laptops were reported by students and parents. Students and parents reported great benefits from ownership for the whole family, not the least being the decrease in sibling competition for use of the home computer. Little can be concluded regarding effects on student attendance from the test drive. However, having the wireless laptop did significantly improve the attendance of at least one chronic truant.

Researching, creating, interacting and utilising the software enhanced student control over and engagement in their learning. Students place high value on their laptops. Many factors made the laptops of great value to students. Students valued their laptops so greatly that absenteeism increased significantly on the last day of the trial, presumably so that students could keep them for a further weekend.

The ability to use the computers for social interaction was one of the major reasons for students valuing their computers highly. This was demonstrated by their change in regard for the machines when access to these sites was blocked.

With such a large investment being made in them, it is important that students value their laptops as highly as possible. As one of the test drive principals put it, “It is critical that students love these laptops; that they feel strong ownership of the laptops, like they own and love their mobile phones If we can achieve that, … laptops being left at home, laptops being broken, laptops being lost, will be reduced”.

Access to social interaction sites from home is favoured by 80% of parents surveyed, despite their concern regarding cyber-bullying. Access to social networking and email sites from home would significantly increase the value of the laptop computers to students.

An urgent review of the DET policy for internet filtering is essential. Too many educationally useful and valid sites are blocked. This has the potential to discourage the use by students of the solution.
1.5 EVALUATION AREA: PARENTS

1.5.1 Assess parental attitudes to the laptops program

Parents were very positive about the laptop program. Their enthusiasm increased slightly following observation of their children using the laptops during the test drive, as can be seen in their responses to questions 10 and 11 in the parent survey.

Parents gave many reasons for their enthusiasm in their responses to the survey and in focus groups. Here are some of their responses.

In the area of learning:

“The laptop has heightened my child’s sense of responsibility towards her learning”.

“She was more independent and proactive in doing her school work”.

“Individual learning”

“She is able to concentrate on schoolwork without as many distractions”

“The independence in learning”

“Great idea. Hopefully an incentive for children to be eager to learn with the help of modern technology at their fingertips”.

“I believe it is a successful trial and it’s a great idea to use a laptop to make learning more interesting and effective.”

“I believe that this is the way to conduct education in time to come.”

“Great initiative and good work for the next generation.”

“I appreciate the school and government to give this big step of learning, it’s the wonderful step.”

The software:

“.. good variety of programs supplied in the Adobe suite and Windows professional suites”

“Very impressed with the range of software provided. Impressed with the professionalism with which trial was conducted.”
“Seems to be a very good initiative and certainly this is going to help kids in learning and taking full advantage of technology at an early stage of life. This exposure to latest softwares will enable them to develop their skills better.”

Assisting students with their organisation:
“Not losing their school work or having bits of paper lying around which mean nothing”
“Able to organize work and assignments. Easy to store work”
“He can keep his notes organized and can make life a little simpler.”
“Made my child more efficient during class”

Lightening their school bag each day:
“Eventually it will do away with a heavy schoolbag as all relevant material can be downloaded or accessed from a central server.”
“Not having to carry all the books”
“The laptop weighs less than their Maths text book so their bags will be lighter”

Student ownership:
“It gives them a sense of owning a piece of technology and a tool to explore the immense knowledge base that is available on the internet.”

Mobile learning:
“Ability to use the computer in any room in the house”
“Access to search engines and other research tools anytime, anywhere.”
“accessibility and portability of a learning tool”
“allows the student to access their projects at home and at school”

Saving the family budget/equity:
“Parents don’t need to provide a computer laptop to their children”
“The financial strain is off us to buy his own laptop which is something that is necessary”
“Equal opportunity with other students in her year”

Computing power at home:
“Access to software to use at home that wouldn’t otherwise be available for homework”

Gaining computer skills
“The ability to gain better knowledge of a computer, as most jobs these days involve computer work”
“I’m very happy that my child can learn many aspects of word processing, information & communication through use of the world wide web.”
“It will give my child a technological advantage for furthering her studies or future job prospects.”

The following quotes neatly sum up the feeling of many parents:
Many, in both the survey and the focus groups, expressed concern regarding handwriting. There was a general consensus that handwriting skills will decline. As all students must complete their SC and HSC examinations by hand, this raised some disquiet amongst respondents. A typical response was:

“I think there are dilemmas. Will children become much slower and messier at writing and therefore unable to produce what they need in written examinations down the track?”

Others suggested a solution:

“If the schools are going to be using laptops to do everything perhaps the Board of Studies should consider allowing the children to do their exams on computers as well.”

While there was concern over the possible demise of handwriting, there was also recognition that the computer has overtaken the pen in both industry and in education. The suggestion that touch typing be introduced (or, in some cases, reintroduced) into the curriculum was made several times.

Handwriting was not the only concern expressed by parents. Other concerns included:

- Ergonomics (to be discussed in section 1.6).
- Internet access from home for those who do not have it. This was a major concern for quite a few people but is beyond the scope of this project.
- Students using the computer for fun or chatting rather than work.
- The wireless networks at school. Some students had told their parents that they had not proven to be totally reliable and had interfered with some lessons.
- Who owns the computer? Two parents expressed concern that they may have no control over their child’s use of the computer at home. “Who has rights over when the child uses the laptop. Most technology use in a household - even if given to a child by an outsider - would be accessible at the parent's discretion (For example limiting time). But this is the student's from the government. In a way it makes it difficult for the parents to be able to say - enough time on the computer.”

1.5.2 Gain parental perceptions of the influence of the laptop program on their children’s’ engagement with their learning

Of the parents who responded to the survey, 72% agreed or strongly agreed that using the laptops in classes had a positive effect on their child’s engagement in learning. Only 9% disagreed.
Furthermore, 41% felt that having the laptop made their child keener to attend school.

**1.5.3 Guide decisions on the optimal level of filtering at home and at school for students**

This has largely been covered in sections 4.4 and 4.5 where parental observations and wishes regarding filtering of social interaction sites were discussed.

It is clear that parents do want filtering of the internet, as can be seen in these responses in the parent survey:

“I am concerned that if unrestricted access to the internet is allowed via the laptop then parents will have little control over the sites viewed by their children, especially as the laptops, by their very nature, are so portable”

“They have access to student materials and we as parents can be assured that they cannot visit sites that are not desirable”

However, they also reported that too many educationally valid sites appeared to be blocked:

“Websites were blocked that were needed for homework”

“My child complained of lack of access to sites. …… even for school work.”

“The laptop my daughter had kept blocking her from websites that I thought would have been OK.”

This reinforces the need for action on this issue.

**1.5.4 Reveal any issues regarding theft, safety, breakage etc.**

When asked in the survey “What problems (if any) do you see for parents and students due to the laptop program?” theft, loss and damage were all mentioned as can be seen in the following table.

<table>
<thead>
<tr>
<th>Concern</th>
<th>No of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theft of laptop (placing the child in danger was also mentioned by 3 of these respondents)</td>
<td>8</td>
</tr>
<tr>
<td>Accidental loss</td>
<td>4</td>
</tr>
<tr>
<td>Accidental damage</td>
<td>6</td>
</tr>
</tbody>
</table>

Below are some responses from concerned parents:

[Table showing concerns and number of respondents]

Laptops Test Drive Evaluation Page 39
“I am also concerned that my child could become a target for theft/bullying because she is carrying a valuable piece of technology with her.”

“Looking after their computers during lunches, breaks and sport activities i.e. protecting them from being damaged or stolen”.

“Hassles caused by loss/accidental damage”

“How to secure the laptop when schoolbag has to be left unattended (e.g. during sport/PE)”

Even though information on the Computrace computer tracking feature and the ability to disable any stolen or lost computer was given to parents, it is still clear that many are concerned that theft will be a problem and could put their children in danger. They are also concerned about theft within the school when bags are unattended as well as the potential for accidental breakage and the complications this can cause.

To alleviate these fears and to cut down on theft, further information regarding the features of the laptops that make them unattractive to thieves (i.e. Computrace and the ability to remotely turn each laptop into a “brick”), needs to be disseminated in the school and wider community, as should the fact that each computer can only be used by a single user once commissioned.

CONCLUSIONS PARENTS EVALUATION AREA

Parents are very positive about the laptops program for many reasons, including because they:

- enhance student learning
- include extensive software
- assist students with their organisation
- lighten the schoolbag load
- give their children a sense of ownership
- provide mobile learning
- save the family budget
- give students computer power at home
- enhance student computer skills

Parents are concerned regarding the possible demise of handwriting, though many agreed that the computer has overtaken the pen in industry

Some parents suggested that students should be able to use their computers for the Higher School Certificate and all other examinations

A large majority of parents (72%) agreed that their children were more engaged with their learning when using the laptop.

While parents favoured filtering of the internet, they

- reported that genuinely educational sites were being blocked
- agreed (80%) that social interaction sites should be available from home

Further information regarding the features of the laptops that make them unattractive to thieves (i.e. Computrace and the ability to remotely turn each laptop into a “brick”), must be disseminated in the school and wider community for the safety of students.
1.6 EVALUATION AREA: THE TECHNOLOGY

1.6.1 Assess the laptop computers in relation to:

1.6.1.1 Robustness

Many teachers, students and parents were impressed with the sturdiness of the little computers. Students commented upon the fact that they got rough treatment in their bags but held together. Only one screen was broken during the two week test drive. However, the metallic covers on many of the hinges fell off. Many suggested the need for a case to protect the computer from scratching.

1.6.1.2 Processing ability
1.6.1.3 Memory storage
1.6.1.4 Speed
1.6.1.5 Battery Life
1.6.1.6 Adequacy of screen resolution and size for students and teachers
1.6.1.7 Adequacy of keyboard and scratchpad size for students and teachers
1.6.1.8 Ease of use
1.6.1.9 Weight

The following table summarises the responses in the student survey when asked, in question 26, “What were the good features of the laptops and what didn’t you think were good features?”

<table>
<thead>
<tr>
<th>Feature</th>
<th>Student respondents who considered it to be a good feature</th>
<th>Student respondents who considered it to be a poor feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Time taken to load programs/ log on</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Memory storage</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Battery Life</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Keyboard size</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>Screen size</td>
<td>5</td>
<td>36</td>
</tr>
<tr>
<td>Weight</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>Size</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Network</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Audio volume</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Trackpad</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Ease of use</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

This paints a more negative picture of the laptops that was evident during the focus groups and in the rest of the survey. Some of the negative comments about such features as keyboard size were often qualified by statements such as “the screen size was quite small, and the keyboards as well, but it’s still good” and “At first, the keyboard was really squished and compacted together, however I am used to typing here now.”

As can be seen, screen size, keyboard size and the small and very sensitive trackpad were the features that students thought were the poorest. The light weight and small size, which largely determine the screen, keyboard and trackpad size, were seen as very positive features. Some students acknowledge this tension their responses.

The following table summarises the responses of teachers in the survey to question “What were the good features of the laptops? Some examples of features of the laptops are: robustness; processing ability; memory storage; speed; screen resolution; screen size; size of keyboard; ease of use; weight. Please give us reasons for your answers”.

Laptops Test Drive Evaluation Page 41
The following table summarises the responses of teachers in the survey to question 24. “What features of the laptops did you not like? Please give us reasons for your answers”.

<table>
<thead>
<tr>
<th>Feature and reasons</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ergonomic issues. These included concern for both students and teachers working with the small laptops over extended periods of time. Two respondents complained of pain: neck and back ache for one; headache for the other.</td>
<td>5</td>
</tr>
<tr>
<td>Smallness of:</td>
<td></td>
</tr>
<tr>
<td>• Screen – constant scrolling necessary</td>
<td>14</td>
</tr>
<tr>
<td>• keyboard - keys too small for fingers</td>
<td>7</td>
</tr>
<tr>
<td>• trackpad – difficult to use</td>
<td>4</td>
</tr>
<tr>
<td>Wireless network connection inconsistent</td>
<td>2</td>
</tr>
<tr>
<td>Inability to connect with school network</td>
<td>1</td>
</tr>
<tr>
<td>Insufficient memory and lack of speed for running some of the applications, particularly Premier Elements and Photoshop</td>
<td>5</td>
</tr>
<tr>
<td>Battery Life insufficient</td>
<td>2</td>
</tr>
<tr>
<td>No internet access in staffroom</td>
<td>1</td>
</tr>
<tr>
<td>Webcam function slow and difficult</td>
<td>1</td>
</tr>
<tr>
<td>Lack of CD/DVD drive</td>
<td>2</td>
</tr>
<tr>
<td>Need for more USB ports</td>
<td>1</td>
</tr>
<tr>
<td>No problems</td>
<td>2</td>
</tr>
</tbody>
</table>

Like the students, screen, keyboard size and the difficult trackpad were seen as negatives.

The following table summarises the responses in the parent survey when asked in questions 17 and 18 what they thought were the good and poor features of the laptops.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Parent respondents who considered it to be a good feature</th>
<th>Parent respondents who considered it to be a poor feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Time taken to load programs/ log on</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Memory storage</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Battery Life</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Keyboard size</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Screen size</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Weight</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>Size</td>
<td>25</td>
<td>0</td>
</tr>
</tbody>
</table>
In the replies from students, teachers and parents the tension between size and weight on one hand and screen, keyboard and trackpad size on the other hand was evident. Size and weight were almost universally applauded. Size of screen, keyboard and trackpad were almost universally seen as the poorest features of the machines. Students seemed to accept that the convenience of small size and low weight was of greater importance than the small screen, keyboard and trackpad. Teachers and parents did not.

**Ergonomic Concerns**

Several teachers raised ergonomic concerns in their responses to the survey. These included concern for both students and teachers working with the small laptops over extended periods of time. Two respondents complained of pain: neck and back ache for one; headache for the other. At a school executive focus group the concern was also raised:

“…. issue of size of the screen, ergonomic issues – keyboard, screen size. If students do end up using these things in a majority of the lessons, maybe not all, if we went for them as replacements for exercise books, they would be using them for long periods of the day.”

One principal of a test drive school stated that he will offer teachers flat screen monitors in their staffrooms to overcome the problems of the small screen.

One student commented:

“It hurts my eyes after staring at the screen for the whole day. Makes me tired easily. Makes me want to sleep in class more easily”.

This was the only such response among hundreds of student responses to the survey. No student made mention of ergonomic problems during the focus groups.

Parents also mentioned ergonomic concerns during the focus groups. For example:

“…… size of the screen – I think they are a little bit small, cramped. Mainly from an eye point of view. My daughter had headaches. If it was me using that laptop all day I would get headaches too.”

Concerns were raised 10 times in the parent survey responses. For example:

“The screen seemed too small as my child would hunch over the computer and peer at the screen”.

“The screen size is too small to be used as a day-in day-out device”.

“We found the screen size is extremely eye straining ….. I am very concerned that over the years the small size of screen will have a detrimental effect on children’s eyesight”

1.6.1.10 Theft and breakage levels

Only one screen was broken during the test drive, probably due to the screen being accidentally closed onto a sharp object such as a pencil-sharpener. The only other breakages were to the metallic covers on the hinges. No laptops were stolen. Many suggested the need for a case to protect the computer from scratching.

1.6.1.11 Assess and continually improve the networking solution

WAITING FOR INFORMATION FROM ITD
1.6.1.12 Assess the solution for home computing

Internet access from home

Of the student respondents to the survey, 94% reported having Internet access from home. Of these, 25% experienced difficulties accessing the Internet through their home connection. This can be seen in the answers to questions 5 and 6 of the student survey:

A similar proportion of teachers reported that they had Internet access, though fewer had problems connecting with their laptop:

The inability of so many students to connect to the Internet from home was the cause of a great deal of comment. The problems cited were:

<table>
<thead>
<tr>
<th>Problem</th>
<th>No. of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB modems (not supported by this solution)</td>
<td>4</td>
</tr>
<tr>
<td>No wireless network at home</td>
<td>1</td>
</tr>
<tr>
<td>Dial up modem and cable didn’t fit the laptop</td>
<td>3</td>
</tr>
<tr>
<td>Wireless network at home but, for unknown reason, would not connect</td>
<td>8</td>
</tr>
<tr>
<td>Connection intermittent</td>
<td>2</td>
</tr>
<tr>
<td>No wireless but still wouldn’t connect with Ethernet cable</td>
<td>2</td>
</tr>
<tr>
<td>Didn’t know the security password for the home wireless network</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the three teachers who couldn’t connect, two had USB modems and the other had intermittent connection via their home network

Peripheral Devices
There were many problems using peripheral devices such as printers and scanners with the laptops. 14% of students reported problems, while 24% of teachers reported problems:

<table>
<thead>
<tr>
<th>Response</th>
<th>NO. of similar responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 2600N on a network router</td>
<td>1</td>
</tr>
<tr>
<td>Doesn’t like USB modem connections</td>
<td>2</td>
</tr>
<tr>
<td>Lexmark X1270</td>
<td>1</td>
</tr>
<tr>
<td>I don’t know the model but it wouldn’t install the software because of the group policy and the inability to run exe files</td>
<td>1</td>
</tr>
<tr>
<td>HP 1320 drivers installed but wouldn’t print. Think it was me but didn’t have time to fiddle</td>
<td>1</td>
</tr>
<tr>
<td>Brother MFC-685CWLAN</td>
<td>1</td>
</tr>
<tr>
<td>Cannon S100SP</td>
<td>1</td>
</tr>
<tr>
<td>I couldn’t connect to my printer at home Laserjet 360</td>
<td>1</td>
</tr>
<tr>
<td>No internet - couldn’t download drivers, same for Bluetooth to phone</td>
<td>1</td>
</tr>
<tr>
<td>Couldn’t install drivers for printer at school - Canon LB 3710 wouldn’t install; blocked by group policy</td>
<td>1</td>
</tr>
<tr>
<td>Printer at home Fuji Xerox DocuPrint C3290FS</td>
<td>1</td>
</tr>
<tr>
<td>The HP Photosmart All-in-one C6180 printer fails to install. The DVDs supplied are OS specific</td>
<td>2</td>
</tr>
<tr>
<td>Canon MP30/50</td>
<td>1</td>
</tr>
<tr>
<td>It’s a Dell printer and the laptop won’t allow it to install/connect</td>
<td>1</td>
</tr>
</tbody>
</table>

1.6.1.13 Gather user feedback to guide future iterations of the solution

AWAITING INFORMATION

CONCLUSION: THE TECHNOLOGY EVALUATION AREA

The following were considered to be good features of the laptop computers:

- Size
- Weight
- Battery life
- Memory
- Ease of use
- Robustness

Teachers and parents thought speed was good, while students were evenly divided on the issue. However, students did complain about the time it took to log and to load some programs.
The ability of the computers to cope with Adobe Premier Elements and Photoshop was brought into question by some teachers. The following were considered to be poor features:

- Screen size
- Keyboard size
- Trackpad

Students seemed to accept that the convenience of small size and weight was of greater importance than size of screen and keyboard. Parent and teachers did not. Advice on proper ergonomic use of the laptops is needed urgently. The potential is there for students and teachers to suffer health problems due to the small size of the screen.

No laptops were stolen. Only one screen was broken. The metal covers fell off some of the hinges. A case will help to prevent scratching.

Assess and continually improve the networking solution: awaiting

Of those with Internet connection at home, 25% of students and 11% of teachers were unable to connect their laptop to the Internet at home. The main reason given for being unable to connect to the internet at home were given as:

- Inability to connect to the home wireless network
- USB modem
- Dial-up modems

There are equity issues regarding access to the Internet from home that are beyond the scope of this project. However, where students have internet access at home solutions need to be found so that they can use their laptops. There were many problems connecting to peripheral devices at home. Many of these problems seemed to come about because of the lack of installed drivers and fact that drivers could not to be downloaded onto the laptops. Some solution to this problem is needed.

Gather user feedback to guide future iterations of the solution: awaiting information.
1.7 EVALUATION AREA: TECHNICAL SUPPORT

1.7.1 Guide the training of Technology Support Officers (TSOs)

The Test Drive has inform the program of the need for initial training and induction of Technology Support Officers. One of the key test drive findings is the need for the school-based TSOs to be inducted into a school in the appropriate way. Such an induction needs to include:

- Child protection
- Code of Conduct
- Working in a school, including:
  - what to wear
  - school timetable and bells
  - smoking and alcohol
  - school hierarchy
  - the range of computer proficiency in the school

These specific items and more have now been incorporated into the induction process for school based TSOs.

The training of the test drive technology support officers included an overview of the complete solution at a very high level. It soon became apparent that the individuals being recruited required a more in-depth knowledge and understanding of the solution. Further induction materials since the initial test drive have been developed to help inform school based TSOs of the technology that we are expecting them to support going forward.

One of the key deliverables of the DER-NSW program is the Operational Support Guide. During the test drive this particular document was not available for TSOs. The need for such a guide was highlighted many times during the test drive. A document, be it printed or online, was deemed essential to help support the TSO on the ground. In response to this, additional resources and time have been given to developing such a guide in readiness for the roll out of TSOs state-wide.

1.7.2 Clarify the role of the TSO

The test drive TSOs were appointed based on the position description which was developed in consultation with the NSW Secondary Principals Council and Regional IT Managers. The test drive has highlighted some of the specific skills and more importantly personal attributes required of a school based TSO. During the test drive the role was far from a technical one. The TSOs were very heavily involved in the day-to-day use of the devices in the classroom and, for a high proportion of their time, problem solving issues, specifically around connectivity, directly with the students whilst a lesson was in progress.

It was also clearly identified that a large use of the TSOs time was undertaking the cumbersome allocating and commissioning process. It is expected that this process at the beginning of each term or school year will take significant resource and that DER-NSW Regional Managers may be required to pool TSO resources between schools as required.

It was expected that the role of TSO would be mainly a warehousing position, but the test drive proved that that simply was not the case. The TSOs interacted with both students and teachers and worked to ensure smooth day to day running of the laptops and wireless infrastructure. This was achieved at the same time as managing and allocating devices to users.

The importance of the individual being recruited to fit in and work with the existing school staff and students was identified as a key requirement of the TSO. The ability to solve
technical issues with DER-NSW related infrastructure and learning devices is again a key skill required.

1.7.3 Assess the ability of ITD to respond centrally to issues experienced in schools AWAITING INFORMATION.

CONCLUSION: TECHNICAL SUPPORT EVALUATION AREA
The training of Technology Support Officers (TSOs) must incorporate information on school life, including:
- Child protection
- Code of conduct
- An induction into the workings of and hierarchy of a school
A more in-depth knowledge and understanding of the solution is required than that given at the induction of the test drive TSOs
There is a need for an Operational Support Guide
The TSOs were very heavily involved in the day-to-day use of the devices in the classroom and, for a high proportion of their time, problem solving issues, specifically around connectivity, directly with the students whilst a lesson was in progress.
DER-NSW Regional Managers may be required to pool TSO resources between schools for the initial commissioning processes on receipt of laptops
The TSO position is not a mainly warehousing position, but is characterised by interaction with both students and teachers working to ensure the smooth day to day running of the laptops and wireless infrastructure.
The ability to work with school students and staff and to solve technical issues with the DER-NSW related infrastructure and learning devices are key skills required.
Assess the ability of ITD to respond centrally to issues experienced in schools – AWAITING INFORMATION