Teaching the Netbook Way

Brisbane girls’ school upgrades from handhelds to Intel® Atom™ processor powered netbooks to boost computing in classrooms

Years of experience using handheld devices in the classroom proved to All Hallows’ School students how important technology is in the classroom – but it also increased their appetite for the full-featured computing experience that is now being delivered with Intel® Atom™ processor powered netbooks.

Challenges

• Deliver online learning outside the lab. After years of relying on shared computer labs, All Hallows’ School needed a more portable computing platform to help students learn better inside the classroom.

• Provide full-featured computing. An earlier investment in handheld devices had demonstrated the value of wireless information access across the school, but the lack of a keyboard and other features were limiting students’ classroom capabilities and access to educational resources.

Solutions

• Deploy netbooks. Beginning in 2009, 240 All Hallows’ students began using Intel® Atom™ processor-powered netbooks instead of PDAs to access online resources, interact with the school’s learning management system, and do schoolwork in class and at home.

• Build supporting infrastructure. Successfully mobilising schools requires both physical infrastructure such as wireless networks, device re-imaging processes and battery programs, as well as appropriate investments in online learning resources.

• Empower teachers. The school’s professional learning programs have been expanded to help teachers fully integrate online resources and supporting applications into their classes, enabling them to deliver rich education in ways that were simply impossible using the previous handhelds.

“...
Intel® Atom™ processor-powered netbooks combine handhelds’ mobility with laptops’ usability to empower better classroom learning and teaching

Assessing the Situation
A Catholic institution founded by the Sisters of Mercy in 1861, All Hallows’ School delivers a comprehensive curriculum to over 1400 girls between years 5 and 12. The school has a long-term commitment to integrating IT into its curriculum, having maintained a number of accessible and well-equipped computing labs for years.

Several years ago, however, growing demand for computing facilities made it clear that the school’s investment in computers had brought it to a crossroads. Relying on external computer labs limited the amount of time each student could get on the computers, with competition for bookings and students able to access the systems for less than two lessons per day.

In 2004, All Hallows’ School embraced handheld computers, which were chosen because conventional laptops were seen as too bulky, inconvenient and expensive for everyday in-class use. The ideal form factor would have been a small, lightweight, low-cost laptop, but the lack of suitable options at the time led the school to conclude that the best move was to equip students with wireless-equipped handheld PCs.

“Our initial investigations suggested that 80 percent of what students need to do, could be done on a netbook – and experience has proved us correct. The girls like the portability of netbooks, the ability to have them with them all day thanks to their excellent battery life, and access to our online learning management as well as word processing and other applications. Compared to the handhelds, there is a far higher level of interaction with the device.”

John Pembroke
Assistant to the Principal, Technology & Analysis, All Hallows’ School

For several years, nearly 300 students integrated their handhelds into their everyday learning. The devices were used to access the Internet, the school’s Moodle learning management system (LMS), and other online resources from anywhere on campus. Those students who needed a full-featured computer for writing papers, accessing the LMS, creating multimedia, or other compute-intensive tasks would simply sign up for time on a lab computer.

Yet as the students’ use of handhelds grew more sophisticated, the devices’ limitations became clearer. Handhelds were good for browsing content, but they didn’t free students from their reliance on lab computers. The school found itself needing a significant investment in ancillary equipment such as wireless data projectors, in-classroom PCs, and more.

“Other schools with laptop programs had a benchmark that the students should use laptops 30 percent of the day – the equivalent of two classes per day – but we wanted to go to a model where the kids had a device with them all the time,” explained John Pembroke, Assistant to the Principal, Technology & Analysis, All Hallows’ School.

“We were frustrated with the way students accessed information when they had to book a computer in a lab; that model wasn’t meeting the needs of the kids or meeting best-practice benchmarks. Handhelds were a starting point, but their small screens didn’t suit the LMS. When teachers took up the LMS faster than expected, it was always in our mind that we were going to take the handhelds out when a suitable alternative emerged.”

Delivering the Solution
With the introduction of small form-factor netbooks in 2008, All Hallows’ School technical staff realised they had found the device they were waiting for. Netbooks offered a keyboard, much-improved computing and display capabilities, a low cost comparable to that of the handhelds and a fraction of that of full-featured laptops, and a long battery life capable of keeping the netbooks running throughout the entire school day.

Working with the help of systems integrator Assured IT, All Hallows’ School commenced the 2009 school year by equipping its entire Year 10 class of 240 students with Intel® Atom™ processor-powered Acer® Aspire One® netbooks. The Year 10 class was chosen to suit the expected three-year lifespan of the netbooks, which were hugely popular with students and quickly became their constant companions around the school grounds.

Rather than relying on computer labs for anything more complex than browsing, students use the netbooks throughout most of their school day and bring them home at night as well. A school usage survey found that nearly 40 percent of students use the netbooks in four or more lessons per day, while 31 percent of students use their netbooks for two to three additional hours after returning home at night.

Microsoft® Word® is the most widely used application by All Hallows’ School students, but Microsoft® OneNote® was named by over half of students as another key application. This confirms the netbooks’ role as note-taking and collaboration tools. Other popular uses for the netbooks included the viewing of electronic textbooks and use of Microsoft® Excel®.

“Students used to sit in class and say ‘we could do that in Excel but we need to book a lab,’” said Pembroke. “Now they utilise Excel and other tools from their desks, and enjoy having a word processor and a device they can interact with more easily. Teachers can administer online quizzes in class, and they’re able to use Moodle more effectively because a number of its activities have now become possible. Parents have been enthusiastic about the netbooks, and teachers have wasted no time exploring the new possibilities they present.”

Spotlight: All Hallows’ School

• Founded in 1861 by the Sisters of Mercy in Queensland
• Teaches over 1400 girls in years 5 to 12 at its campus in Brisbane
• Has long offered students access to technology in purpose-built computer labs
• Runs Moodle learning management system and other online applications
• From 2004 to 2008, students used handheld PDAs for wireless browsing and access to learning applications
Introduction of all-day computing devices has put new capabilities at students’ fingertips, but it has also introduced several management issues the school has addressed. Although most students are happy with the average battery life of over 5 hours, for example, the school has set up a battery swap station where students can get a fully-charged battery when they need one.

All Hallows’ School has also taken a damage deposit for each netbook to foster student buy-in and cover the cost of cracked screens, the most common damage in school environments where netbooks are kept in school bags that aren’t always treated with care. To minimise damage, the school offered students a zip-up satchel in which to protect and carry their netbooks.

To keep netbook management simple, the school opted for netbooks with solid-state drives rather than conventional hard drives. This not only avoids the temptation for students to fill their netbooks with music and other software, but makes it easy to re-image netbooks with a standard image – which includes all key applications and has been tweaked to optimise performance – rather than spend time trying to troubleshoot every problem as it occurs.

Girls can have their notebooks re-imaged on the spot at any time in the event of trouble. Student data is unaffected since it is never written to the SSD; rather, students store their data on 2GB SD cards that stay in the netbooks at all times but can easily be swapped into a replacement unit should the primary unit become unusable.

Students and teachers have warmly embraced the netbooks, confirming Pembroke’s initial feeling that the devices offered both the specifications and the usability that the school had been waiting for.

“The performance of the Intel® Atom™ processor and battery, and power management of the devices, are just excellent,” he said. “Many girls are using their netbooks all day without switching them off, and they all have a much higher level of interaction with the devices than when they were using handhelds. The teachers feel the girls are much more switched on with what they’re doing, and everybody is very much into working this way.”

John Pembroke
Assistant to the Principal, Technology & Analysis, All Hallows’ School

Key Technologies
- A fleet of 240 Acer* Aspire One* netbooks running Intel® Atom™ processors give students access to the school’s Moodle* learning management system, word processing, and other applications
- A schoolwide wireless LAN ensures students can access learning resources from anywhere on campus

Integral Answers
- Assured IT supplied the fleet of Intel® Atom™ processor-powered netbooks
- Acer Australia manages the netbook fleet in close association with All Hallows’ School technical staff, ensuring that students always have access to working machines

Survey Response: In how many lessons each day do you use your netbook (n=94)

Survey Response: In which subjects do you use your netbook regularly? (n=94)
Return on Investment

- Intel® Atom™ processor-based netbooks provide a full computing experience that is delivering real improvements in teaching, learning, and access to ICT resources.
- The low cost of the netbooks makes them viable to deploy across the school in large volumes.
- A simplified management and re-imaging strategy keeps ongoing costs to a minimum.
- Improved access to learning resources and strong teacher buy-in are helping All Hallows’ School students integrate information and computing resources into every aspect of their education.

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