



# Connected ICT– from Telstra and the University of Western Sydney

Using mobile technologies to create a sustainable future for universities and their students

**Telstra is a leading provider of communication and managed services to large enterprise and government organisations in Australia and worldwide, facilitating communication access in more than 240 countries and territories.**

The Telstra Next G® network provides coverage to 99.3% of the Australian population across over 2.3million square kilometres. This network has helped the University of Western Sydney (UWS) develop an ‘Education Blueprint’ through unified ICT infrastructure using mobile technologies to connect teachers, students and staff, providing a robust communication and collaboration framework offering easy access to e-Learning software, apps and data via an IPWAN (Internet Protocol Wide Area Network) service with cloud capabilities.

You can find more information about this at [www.telstra.com.au/business-enterprise/enterprise-solutions/industries/education/index.htm](http://www.telstra.com.au/business-enterprise/enterprise-solutions/industries/education/index.htm)

### Creating a telecommunications–education partnership

UWS has used the Telstra Next G® network and Telstra services to identify the potential role of ICT-enabled learning in creating a sustainable future for UWS and its students. UWS is a multi-campus organisation, providing degree courses across a broad range of subjects, primarily in the Sydney basin. They aim to use technology-rich teaching environments to enhance the competence of teaching staff and offer teachers and students the chance to work remotely from different locations.

The pilot involved trainee teachers and focussed on how ubiquitous access to ICT might:

- change teaching;
- enable learning ;
- enhance the students’ experience of learning to teach; and
- assist student retention.



“Telstra’s been great. They’re not just a technology company as far as we’re concerned with this project. Telstra has helped us by providing expertise and then followed up with providing boutique and bespoke plans for us, to enable us to do this pilot. And they provide us with back-end support in terms of monitoring the usage, so that we get some indication of what the students might actually use once they are able to be connected ubiquitously.”

*Shane Wharton, School Manager, School of Education and Programme Lead, UWS*

### It also looked at:

- what technology infrastructure and capacity would be required to support these students; and
- what kind of data, and how much, a typical student might use in the course of a year’s study.

There were no regulatory or government hurdles to overcome.

### Key partners

Telstra and UWS partnered with Acer Computers Australia (Acer) to supply notebook computers to the trainee teacher students in the pilot. Acer is one of Australia’s largest computer brands; dominating the notebook and tablet computer markets and specialising in education requirements.

### Learners

The pilot involved a group of 100 trainee teachers drawn from the UWS School of Education main postgraduate Master of Teaching programmes (Secondary Education and Primary Education) and the Bachelor of Education (Birth to 5 years). The Early Childhood students were in the last year of their undergraduate courses and all took part in the pilot. The Primary and Secondary Education students were self-selecting after invitation from the lecturers, based on the units they were taking (in the case of the Secondary cohort, for example Teaching Methods of Science and English).

Full details of the teacher education programmes are available at [www.uws.edu.au/education](http://www.uws.edu.au/education)

### Core technologies

The School of Education decided that, for the purposes of the pilot, students would need Wi-Fi access on campus and Telstra Next G<sup>®</sup> access off campus. The connections had to be ubiquitous, so that students and teachers could connect at the same time wherever they were, i.e. on campus or off. The 3G data allowance was set at 8GB per student per month.

Each of the students received an Acer Aspire 1830T ultra-light notebook with all-day battery power. Telstra hosted a final requirements workshop (supported by both Telstra technical and education staff) with both UWS staff and Acer staff participating. The students were familiarised with the Acer notebooks at a briefing session held immediately prior to commencement of the pilot. Both Telstra and Acer participated in this session. Acer provided the students with subsidised Acer notebooks and Telstra provided a subsidised and bespoke Next G<sup>®</sup> data network access plan for each student – supplying them with SIM cards so that they could access the internet if there was no Wi-Fi available. They also monitored student data usage and created an online portal so that UWS staff could also capture and monitor the data. UWS provided Wi-Fi coverage on campus and funded the residual costs of the notebooks and data usage.

The Telstra Next G<sup>®</sup> network has helped to enable students to access online resources and educational software (as well as Open Source software) beyond the UWS campus, in their homes, on their placements and even while travelling.

Telstra's back-end monitoring software allowed the School of Education at UWS (School) to monitor individual and cohort data usage to provide a baseline for future capacity planning. The Acer manufacturing, core technologies and back-end services meant that the project was able to create bespoke standard preloaded software and settings, including Microsoft Office and the Adobe Creative Suite. This greatly reduced the costs and efforts involved in distributing and maintaining the notebooks.



"In English we made videos ... couldn't do this before, interactive assignments forced us to do new skills."

Secondary Education student

UWS, Acer and Telstra funded the pilot. Students did not pay for the use or access and had no access restrictions, although they all signed the UWS ICT Acceptable Use Policy.

### Learning content

Learning content varied between units and programmes but all the units used a blended learning approach, with online materials and activities delivered via the UWS Learning Management System (Blackboard) known as vUWS. vUWS hosted courses, online activities and discussions, and students also used other sites and technologies (such as Facebook and YouTube). All units had, as a minimum, online support via the vUWS site.

Some of the students also set up mutual supportive online study syndicates to share ideas and teach each other skills – using software for both educational purposes and personal productivity.

### Teaching and learning

There were many and varied ways that the notebooks and content were used for learning. For example, in one unit, all assessment tasks included an ICT-

enabled requirement such as producing a multi-media presentation or an electronic portfolio, while other units required students to use ICT in their teaching placements.

Each unit was evaluated separately and results of student feedback integrated into subsequent delivery.

### Solution support

Students were provided with a range of question and answer sheets to help them use the Acer Aspire 1830T and the School's Technical and Facilities Manager was their contact for any technical issues.

They could also back up data and reimage their Acer Aspire 1830T to the standard settings at any time. Spare notebook computers were available from the School, if needed, so there was minimal downtime.

### Timescales

It takes time to introduce new technologies into the learning environment. The pilot was originally conceived in the School of Education, UWS, in mid-2009 (when tablet computers did not exist). In 2010 the School set up the relationship with Telstra and Acer. In Semester 2 2011 the Early Childhood cohort were provided with Acer PCs and Telstra Next G<sup>®</sup> data access, while the Primary and Secondary cohorts received theirs in Semester 1 2012. The pilot concluded at the end of Semester 2 2012.





“I have connected to the Telstra wireless network. I just wanted to say thank you very much for making it so easy to connect – the factsheet was very simple and helped a lot so thank you!”

Early Childhood student

### Success to date

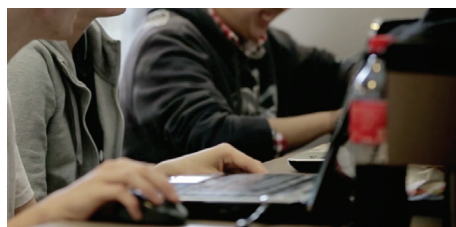
The technical and logistical implementation went very smoothly. The close relationship between Acer, Telstra and UWS helped to ensure high-level senior management support in all three organisations.

Data captured about usage of the devices will allow the School to plan for future mobile data network usage for typical students in each programme.

Detailed evaluation of the data will be published in 2013 by UWS and will articulate the student voice. Initial feedback from students has indicated that most considered that participation in the pilot had prepared them to be better teachers in terms of using ICT (particularly in relation to student engagement), and had assisted them in their study. It was acknowledged that having easily-available internet access could also prove a distraction (eg Facebook), but this was a minority view.

### Lessons learned

- High-level senior management support helps to ensure smooth implementation.
- The lead academics involved in the pilot suggest that more staff training is needed on the integration of ICT into teaching to help further engage its use by academic staff.
- At a systems level, increased Wi-Fi capacity is needed to meet the needs of high-density wireless demand. The Wi-Fi that existed when the pilot began only provided coverage of 802.11.b to ‘student’ spaces in the University. This was not suitable for the pilot and additional 802.11.n WAPs were tactically deployed in tutorial rooms used by the students in the pilot and in high-density communal spaces. (802.11.b and 802.11.n are part of a set of standards developed by the Institute of Electrical and Electronic Engineers for wireless LAN technology. 802.11.b is the most mature and cost effective 802.11 technology and supports wireless data rates up to 11 Mbps. 802.11.n is the newest technology which utilises multiple wireless signals and antennas, and supports data rates of over 100 Mbps). After the pilot was set up UWS upgraded the Wi-Fi infrastructure more strategically: upgrading LAN backbones, the entire WAP infrastructure and the Wi-Fi back-end software, and deployed wireless controllers.
- It is important to use a sufficiently powerful mobile devices – the vast majority of students involved in the pilot were happy with the Acer notebooks and considered them fit for purpose. At the end of the pilot students were offered the chance to buy their notebooks for \$A180 – about one-quarter of the usual retail price – and approximately half of them took advantage of this offer. The other students either already had devices they were happy with, or could not afford to purchase the notebooks, even at the reduced price.



### What next

The Telstra NextIP® and NextG® networks and services are helping to change the management, delivery and support of education and training.

UWS has developed support mechanisms for ubiquitous online access based on the lessons learned in the pilot.

All first-year students enrolling at UWS in 2013 and all academic staff will receive a tablet computer. Its introduction will be closely monitored to find out if the device meets students’ learning needs.

Two case studies are being developed for publication based on focus groups with students the School undertook during and after the pilot to gain an insight into students’ thoughts, experiences, concerns and reactions to being participants in the pilot program. The School plans to report on its findings in 2013.

UWS, Acer and Telstra look forward to developing the working relationship with the School and enhancing their shared understanding of what is possible and what can be aspired to.

“The UWS IT Strategy calls for a greater focus on e-Learning standards and support, and this is an excellent example of the collaboration needed between IT Services and the Schools in order to support this objective. By utilising contemporary approaches in such a practical manner, we not only provide better support to the students involved, but heed the lessons learnt in order to move to the next phases with confidence.”

**Kerry Holling**, Director,  
Information Technology Services, UWS

#### To find out more

Details of the final research will be available on the School's website and electronic newsletters during 2013 while discussions take place on the blog.

School website:

[www.uws.edu.au/education](http://www.uws.edu.au/education)

School's blog:

<http://learning21c.wordpress.com/>

In particular, see <http://learning21c.wordpress.com/2012/09/23/laptops-support-rising-to-the-technology-challenge-in-teacher-education/>

School's newsletters:

[www.uws.edu.au/education/soe/school\\_of\\_education\\_enewsletter](http://www.uws.edu.au/education/soe/school_of_education_enewsletter)

#### Contact

Shane Wharton, School Manager, School of Education, University of Western Sydney, [s.wharton@uws.edu.au](mailto:s.wharton@uws.edu.au)

Telstra's ICT education solutions:

- Improve access to learning opportunities.
- Strengthen linkages and partnerships between the education sectors so that student learning experiences become a continuum characterised by consistent best practice.
- Enhance opportunities for learning throughout life by providing access to individualised and flexible education and training.
- Support current and future needs of the industry, communities and regional areas.

#### About the GSMA Connected Living programme

Connected Living is a market development initiative whose mission is to help mobile operators accelerate the delivery of new connected devices and services. Our target is to assist in the creation of 800 million new mobile connections, whilst stimulating a number of service trials and launches in the Automotive, Education and Healthcare sectors. We also have a special focus on Smart Cities and supporting the development of the global Smart Cities Community. We are working in mEducation to help bring the operator and education industries together to address market barriers, foster collaboration and speed up the adoption of mobile education services.

For further information please contact us at [meducation@gsma.com](mailto:meducation@gsma.com) or visit [www.gsma.com](http://www.gsma.com)

#### About Acer

Acer creates innovative technology for the classroom to help students broaden their horizons with new avenues of communication and interaction. Its trusted solutions are easy to use for teachers and students alike, empowering both groups to keep pace with today's high-tech world. With confidence in their technology, teachers can enhance their effectiveness and make learning feel closer to students' everyday lives.

#### About the University of Western Sydney

The University of Western Sydney (UWS) is a large, research-led metropolitan university operating over multiple campuses in Greater Western Sydney. The University 'brings knowledge to life' in the education of students for employment, the application of research to contemporary problems, and mutually enriching partnerships with local schools, organisations, businesses, and community groups.

UWS research is a major driver of new knowledge and innovation and ranks among the nation's best. For our 42,000 students, UWS provides professionally relevant, flexible degrees which equip them with the practical skills and theoretical knowledge to become career-ready graduates.

