The Six Ps:
The essential elements schools need for BYOD success

A fundamental shift in education is taking place in Australian schools, with personal devices re-shaping the learning landscape and heralding the arrival of the first generation of BYOD (Bring Your Own Device) learners - students who bring personally owned devices to school en masse for learning.

Government-funded initiatives, like the Digital Education Revolution (DER) program providing laptops to students, gave schools a taste of what was possible when one-to-one technology is employed in the classroom on a large scale.

Now, with funding dried up and the devices originally issued coming to end of life, schools have been left to 'their own devices' to maintain the momentum.

Students are driving change too. They live connected, device-driven lives and don't know a world without them. Facebook and YouTube have been around longer than today's 10-year-old students.

Benefits of BYOD

BYOD delivers a more personalised, student-centred approach to learning. Unlimited access to content, resources, experts, databases and communities is but a finger-swipe away. When schools embrace such resources in the classroom, they help equip students with the skills they will need for the digitally-driven world in which they will live, learn and work beyond the school gates.

Critical thinking, digital literacy, collaboration, problem solving and a love of learning through multiple pathways can all be fostered in a dynamic learning environment facilitated by technology.

The BYOD Imperative

For schools, BYOD is no longer a question of if, but how. They face new and potentially overwhelming choices, opportunities, issues and challenges: What BYOD program? What device? Who is going to support, maintain and manage them? Will the network cope? How do you get parents on board? How do you help teachers change the way they teach?

This is uncharted water. Schools have implemented technology rollouts of school-owned equipment, but they haven't rolled out BYOD programs for parents and students. Thousands of schools and millions of parents are making decisions about what device to provide, as buying shifts from education departments and schools to individual families.

With almost 9,400 schools responsible for more than 3.6 million school students in Australia*, that is a lot of 'customers'. But with no 'one size fits all solution', where do schools start?

Considerations: The 'Six Ps'

BYOD success will be shaped by a school's commitment to its success, the model chosen and the planning around its implementation. Essential key factors can be summed up in the following 'Six Ps':

1. **Planning & Preparation**

2. **Parent Participation**

3. **Professional Development & Pedagogy**

4. **Policies & Best Practice**

5. **Partnerships with Technology Providers**

6. **Prescribed Parameters**

1) Planning & Preparation
Schools need a roadmap of where they want to go. Educational outcomes need to come first. Only when they have been clearly articulated, should attention turn to the devices and infrastructure needed to achieve the vision.

When technical expertise, existing network infrastructure and financial resources are limited, starting small with a pilot before a full rollout gives schools the opportunity to test their approach with a toe in the water first, address any issues and re-visit any part of the strategy that needs tweaking for the greatest chance of a successful full rollout.

2) Parent Participation
The importance of involving parents and getting them on board cannot be over-emphasised. Parents or parent representatives should be included in BYOD planning early in the process to gain support and cooperation. Like organisational change best practice in corporations, schools need to engage their stakeholders in the journey from the outset – especially when they're footing the bill.

3) Professional Development & Pedagogy

Teacher effectiveness and professional development is key to BYOD success.

Incorporating effective use of student-owned technology into classroom activities requires more than a device. It requires a different pedagogical approach, yet it's common for teachers to be asked to participate in BYOD with little or no professional development.

Ongoing professional development that includes a coaching component is an effective model, but is time and cost intensive. Schools can foster collaborative training, where technically proficient teachers become BYOD champions, facilitating training of others and sharing knowledge and best practice.

4) Policies & Best Practice

How well a school handles a range of issues can make or break a BYOD program. A handful of clearly stated, reasonable expectations that lay the ground rules from the outset can set the scene for BYOD success.

At the planning stage, schools should develop a framework of policies and procedures around key considerations, including responsible/ appropriate use and network access. Equality must be considered too. What happens to students who don't have or can't afford a device?

Developing a culture that encourages good digital citizenship through responsible and acceptable use policies is very important and provides the school with the opportunity to educate students about online safety and security. A common best practice is requiring students and parents to sign a responsible use policy.

Other areas of policy to address include licensing, downloading, trouble-shooting student owned hardware, lost and broken devices, charging batteries, privacy, Internet access, copyright and insurance.

5) Partnerships with Technology Providers

With many schools in a quandary about how best to approach BYOD, technology providers and resellers are in a position to step up to help guide and advise on practical, educational and strategic considerations.

Acer's BYOD program was designed following eight months of intensive research and interviews with schools and government authorities to mesh the enterprise needs of the school with the consumer patterns of parents and families.

The result goes beyond product, to include initiatives that help schools communicate the BYOD strategy and message to the parent stakeholders. The solution addresses the shift from centralised responsibility for essential Duty of Care requirements to the parent by recreating a standalone version of these services on the device itself. A combination of software services and student behavioural care helps schools mitigate and manage risk associated with less stringent control of parent owned BYOD devices.

Schools typically have in place a Learning Management System for content delivery and internet access for student research and consumption. Devolution of device ownership to BYOD however means that many previously centralised and essential services such as internet filtering, virus protection, social media monitoring and asset protection can no longer be provided by the school or state education departments due to software licensing arrangements.

Having deployed almost a third of the estimated 950,000 DER laptop devices, Acer firmly believes that industrial grade devices, while more expensive to design and manufacture, are better suited to the high duty cycle education environment than a consumer grade device offering superficially similar performance but built down to a lower price.

To deliver a costlier commercial grade device at an affordable price point that appeals to student's parents, Acer has implemented online BYOD procurement. The approach systemises and strips operational cost out of high frequency/low dollar value transactions, while allowing for integration of the traditional resellers or retailers for additional support, product demonstrations and information services for parents who prefer those channels.

6) Prescribed Parameters

A free-for-all 'bring anything that connects' approach to BYOD is unwieldy and puts school IT administrators under immense pressure to manage the network and device connectivity, while teachers inevitably end up teaching to the 'lowest common denominator' – the lowest level of device capabilities. Providing guidelines to parents and students through prescribing parameters for minimum requirements of devices for a BYOD model overcomes those issues.

Work easy. Play hard. ■ Windows

BYOD Implementation Models

The BYOD model chosen should only be determined after the school has clearly formed its goals and the value it wants the devices to bring to the learning environment.

BYOD models can range from prescribed and standardised, to open-ended and flexible, with the middle ground including specific set or minimum technical specifications and capabilities

Schools may choose to limit devices to specific types, a specific brand or a device that meets certain technical specification or minimum specifications, including operating system, storage space, applications (including virus protection, productivity suites, mail), licensing arrangements, screen size or battery life.

Choosing a device

Different devices will suit different students' needs, depending on age, subject choices, preferences and parental budgets. Consideration should be given to cost, capabilities and availability of applications. More powerful and capable devices will enable the BYOD goal of content creation and self-directed learning, while simpler and less powerful devices may be useful only for simpler

content consumption purposes. The range of options include:

Notebook/Laptop

Notebooks come in a wide range of sizes and prices depending on the features and performance students of different ages need. Some notebooks have added security features and some are built for travel while others are great for everyday mobility.

Why a notebook?

- Wide range of options to fit any budget
- Most notebooks have detachable batteries
- Various screen sizes from 11.6 inches to 15 inches
- QWERTY keyboard makes extended note-taking and essay writing easier.
- Many have internal optical drives
- Familiar folders and file format.
- Flexible 'input' options e.g. DVD drives (depending on model), USB slots & cameras.
- Range of powerful applications, processing power and storage.

Downsides?

- Larger, heavier and more expensive than other options – need to factor software costs into purchase price.

Tablet

The ultimate in mobility with a wide range of screen sizes and models, tablets allow collaboration, sharing and entertainment in one simple device.

Why a tablet?
- Extreme mobility
- Models to suit any budget
- Screen sizes from 8 inch to 10 inch
- Power of a notebook, portability of a tablet
- Smaller and lighter than a laptop.
- Large range of small, specialised apps – usually cheap, often free.
- Strong multimedia capabilities (photos, music, podcasts, video).

Downsides?
- Generally less storage and processing power than a laptop.
- No traditional keyboard - type on screen, use a stylus or 'Active pen' on screen, or attach a separate keyboard.

2-in-1 devices

2-in-1 devices comprise a notebook with the ability to detach the screen to use as a tablet. It is a good option solution for students who want the benefit of having a full keyboard for typing, with the freedom and mobility of a tablet.

Why a 2 in 1?
- Power of a notebook, portability of a tablet
- Detachable screen
- Active Pen models allow 'writing' on screen, helpful for student note-taking
- Flexible notebooks with detachable screens – detach the screen & use as a tablet.
- A full keyboard for typing.

Downsides?
- Potential for students to lose or damage detached screen.
- Most models not as portable as a standalone tablet.

Ultrabooks

Ultrabooks are a category of high-end laptops designed and specified by Intel to have a slim profile, be light to carry, and boast long battery life.

Why an ultrabook?

- Best combination of mobility and performance
- Instant resume, less than two seconds from sleep
- Ultra-thin, less than one inch thick
- Light weight, generally less than 1.5 kilos
- Long battery life and standby

Downsides?

- Tend to be at the premium end of the price spectrum
- Keyboards are shallower (due to Ultrabook thinness) and not as well spaced as many traditional laptop keyboards

Work easy. Play hard.   ⊞ Windows

Capabilities & Minimum Requirements

Schools should establish minimum capabilities specs for the types of devices students can bring, based on the kinds of learning activities the devices need to support.

Capabilities to consider will vary depending on student age and curriculum areas to be studied, but include:

- Handwriting recognition for maths, music, sciences (chemistry) and language characters
- Software for CAD, web and graphic design
- Typing – extensive, such as for long essays and assessment tasks
- Music composition support
- Audio and video capture and editing
- Video conferencing ability
- Internet research

WiFi capability
No device is helpful if it can't connect to your school's network. Inform parents exactly what is needed to connect wirelessly to its network before they buy.

Minimum specs
Stipulate minimum processor and hard drive requirements, which operating systems the school supports and any specific software or apps needed. Access to and installation of software is an important consideration. Cloud-based applications and software such as Microsoft Office 365 that provide a rich experience across devices are practical complementary elements to a BYOD program.

Operating system choice is important too. Platforms such as Windows 8 that features an app store make it easier for IT administrators and teachers to coordinate applications used by the student body, and for students to access and download them. Other features, such as greater touch screen capabilities give students greater flexibility for more dynamic classroom usage and student engagement in learning activities on a range of device types.

Schools should also investigate education licensing programs that may offer discounts or volume-licensed educational pricing.

Note-taking ability
Note-taking is important, particularly in the high school years, so recommend software such as word processing applications such as Microsoft Word or the MS Office suite of applications that make it easy for students to create and save notes or presentations in different formats.

Screen size & weight
- Devices should be light enough to carry to, from and around school each day,
- For laptops – students will spend a lot of time looking at the screen, so make sure it is large enough for comfortable viewing of web pages, written work and videos. Larger screens generally mean a slightly bigger – and more powerful – laptop, which may aid productivity too, while still being portable.
- For tablets - a larger screen (8 inches-plus) makes reading, web browsing and viewing easier.

Battery Life
While some schools provide "charging stations", stipulating battery life to last the school day overcomes the need for school-managed charging facilities. A minimum 5 hours is recommended and students should be encouraged to fully charge their device each night, ready for the next school day.

To find out more about Acer's BYOD offerings or for assistance with embarking on a BYOD strategy or product, visit

byod.acer.com.au

or contact Acer Business Development Manager mason.wong@acer.com 0439 179 511

Work easy. Play hard. ⊞ Windows

Infrastructure & Network capacity

Schools should consider the ability of existing infrastructure and wireless networks to accommodate an influx of devices – and future capacity.

Don't underestimate the amount of traffic that will be generated by a BYOD program. If the network can't support all the devices that will be on it initially, limit the scope of the rollout to what the network can support. A staggered rollout is preferable to a network not coping with demand.

Schools should determine what the technical assistance support structure look like. What support will the school provide, if any? And communicate that to parents so there are no surprises.

Preparing students for a digital future

Australian students are ready for the digital future, and schools need to be equipped to support them. The International Computer and Information Literacy Study (ICILS), the world's first computer-based international study into computer and information literacy released in November 2014 found Australian Year 8 students rank second in the world (only behind the Czech Republic) in computer and information literacy **.

The study also showed that teachers' ICT use is greatest when they work in well-resourced schools that collaborate on and plan ICT use.

A planned BYOD implementation can deliver that, transforming the classroom from a place of 'chalk and talk' to a dynamic learning environment where schools, parents and students can 'select and connect'.