WHERE To From HERE?

Diocese of Maitland-Newcastle’s response to the

Post Digital Education Revolution
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The Digital Education Revolution (Overview)

On 5 December 2008, State, Territory and Commonwealth Ministers of Education meeting as the Ministerial Council on Education, Employment, Training and Youth Affairs, released the Melbourne Declaration on Educational Goals for Young Australians which set the direction for Australian schooling in the next decade. These Goals were developed by Education Ministers in collaboration with the Catholic and independent school sectors, following public consultation on the draft declaration. To complement this document a national vision for ICT in school education was developed to enable the transformation of the curriculum and address the changing manner in which learners and educators operate, learn and interact.

To achieve this national vision for ICT in schools the Commonwealth Government initiated the Digital Education Revolution (DER). The DER was a coordinated plan, not only with regard to ICT, but also in respect of approaches to learning and teaching, staff development, administrative processes, resource management and relationships to the broader community.

The DER aims to ‘contribute sustainable and meaningful change to teaching and learning in Australian schools that will prepare students for further education, training, jobs of the future and to live and work in a digital world.’ (National Partnerships Agreement on the Digital Education Revolution, May 2009)

To facilitate these aims the Federal Government provided funding for a range of initiatives including the provision of new ICT equipment for all secondary schools through the National Secondary Schools Computer Fund. The aim of this fund was to achieve a 1:1 computer to student ratio for secondary schools with students in years 9 to 12 by 31 December 2011. The Federal Government committed to the sustainment of 1:1 computer to student ratio to 30 September 2013.

Each education authority across Australia was given the freedom to decide the most appropriate means by which the 1:1 student to computer ratio was achieved. Some decided the requirement would be best met through take-home netbook computers (e.g. NSW Government schools), whilst others considered a combination of desktop and higher-powered laptop computers that remain within the school (e.g. Queensland and Western Australian Government schools).

DER in the Maitland-Newcastle Catholic Diocese (2009-2013)

Overview

The success of the Digital Education Revolution encompasses more than simply providing computers to students. In the Maitland-Newcastle Diocese our focus was on how best to improve the learning outcomes of our students, with the assistance of technology. To address this focus the following implementation plan was developed prior to the deployment of devices:
Leadership – schools developed a coordinated plan for the provision of infrastructure, learning resources and teacher capability to address the educational challenges of the 21st Century.

Teacher Capability – schools provided teachers with opportunities for professional support to develop their skills in designing and delivering programs that meet the needs of students. This professional support harnessed the benefits and resources of the digital revolution.

Learning Resources – schools provided stimulating and challenging learning resources that enabled students to achieve desired learning outcomes. These included collaborative and interactive activities as well as instructional and reference materials.

Infrastructure – schools have been provided with key network upgrades to support the increase in devices including wireless connectivity, internet bandwidth, server and network infrastructure.

These strands provided the foundation for a system-wide approach that provided increased access to in-school devices in Years 7-9 and a 1:1 take-home device strategy across Years 10-12.

Device Funding

The 1:1 laptop initiative involved a shared-cost model between the school, parent and Federal Government. In this model, the laptop was owned by the school with parents paying a “take-home” fee (totaling $360) in exchange for school-based support and 24/7 device access and additional costs (carry bag, software and insurance). The benefits of the model included:

- Higher-quality, robust laptop to meet the needs of 21st century learning
- Enhanced laptop and software platform leading to simplified management and support
- Standardised, reduced cost software through school licensing agreements (e.g. Microsoft Office)
- Volume purchase discounts negotiated with laptop vendor

Device Specifications (2009-2013)

The device selected for the Maitland-Newcastle 1:1 program was a commercial-grade, high-end laptop with superior durability and extended battery life. The cost of the device was minimised through a bulk purchase arrangement by the Catholic Schools Office and represented excellent value for money.

Overall the strategy undertaken by the Diocese to fulfil the requirements of the DER has allowed schools to embrace and embark on new teaching and learning directions. Students have been given the opportunity to learn, develop and practice the skills necessary to be active and confident participants in society today and in the future.
Twenty first century skills and contemporary pedagogy

In the 21st century Australia’s capacity to provide a high quality of life for all will depend on the ability to compete in the global economy on knowledge and innovation. Education equips young people with the knowledge, understanding, skills and values to take advantage of opportunity and to face the challenges of this era with confidence.

(Melbourne Declaration on Education Goals for Young Australians, 2008)

The twenty first century has seen a significant change in the types of work being undertaken. There has been a shift from manufacturing and production to information and creative industries. Concurrently there has been a dramatic increase in the complexity of skills and information required to undertake many of these jobs.

The nature of work and the types of social interactions has been transformed by information and communication technologies. Employers today are looking for people who are able to make informed decisions, share information, communicate effectively and solve complex problems in creative and innovative ways.

Consequently students are required to have skills and abilities to engage with this increasingly complex and collaborative environment. Schools need to take responsibility for developing skills so that our students are fully prepared citizens and employees able to navigate the complexities of an uncertain future. Skills in communication, collaboration, creativity and problem solving are the key to future success.

Broadly the need for students to be collaborative problem solvers has resulted in what could be described as twenty first century skills. The following, provided by the Assessment and Teaching of 21st Century Skills project white paper, gives an indication of the types of skills that schools need to develop in young people:

**Ways of Thinking**
1. Creativity and innovation
2. Critical thinking, problem solving, decision making
3. Learning to learn, Metacognition

**Ways of Working**
4. Communication
5. Collaboration (teamwork)
**TWENTY FIRST CENTURY SKILLS AND CONTEMPORARY PEDAGOGY**

**Tools for Working**
6. Information literacy  
7. ICT literacy

**Living in the World**
8. Citizenship – local and global  
9. Life and career  
10. Personal & social responsibility – including cultural awareness and competence

Schools are developing new ways of learning and assessment in order to develop these skills. Digital technology has become one of the major tools for delivering new ways of learning, its flexibility, processing capabilities and sharing potential means students can have a full and engaging learning experience whenever and wherever they happen to be. It helps raise expectations, encouraging and helping students to develop their critical thinking skills and allows them to demonstrate team work as well as take initiative. This is very different from the types of explicit teaching from decades previous. Students require devices that foster collaboration, creativity and problem solving and allow for personalised modes of learning to equip them with the skills to actively and ethically engage in a fast changing world.

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**20th Century**
- Individual focused  
- Knowledge based  
- Question driven

**21st Century**
- Communication and collaboration  
- Creativity and innovation  
- Problem-solving
Possible Models from 2014 to consider

Models of 1-to-1 Computers
There are various models of 1-to-1 computing that could be considered. The following are models to be considered by diocesan schools and parents:

- **On Premise Device**
  A school-owned device that remains on school property and is shared across classes (funded through a school-wide technology levy)

  **Considerations**
  - School pays for the devices supported by a school ICT levy paid for by parents.
  - School owns the devices
  - Devices stay at school and are shared across classes
  - Devices setup in computer laboratories or banks of devices kept in classrooms.
  - No guarantee every child will get to use a device every day.
  - School supplies onsite technician who is responsible for all maintenance and warranty calls.
  - Warranty is responsibility of school to organise and administer.
  - Schools determine the type of device purchased.
  - Able to connect with school wifi infrastructure
  - Teachers familiar with standardised device and programs.

- **Student-owned Device**
  A student-owned device funded by parents but purchased, managed and supported through the school in some or all years

  **Considerations**
  - Device funded and supported by parents either as a one off payment or repayments over a period of time, as required by the school.
  - Parents own the device once full payment is made.
  - Devices are able to be taken home and each student is responsible for their own device.
  - Devices go with the students
  - Student has a device they can use everyday
  - School supplies onsite technician who is responsible for all maintenance and warranty calls.
  - Warranty and accidental damage included in cost of device
  - Schools choose or make recommendation of device/s for parents to choose and purchase.
  - Able to connect with school wifi infrastructure
  - Teacher familiar with standardised device and programs
• **Bring Your Own Device**
  A student-owned device sourced, supported and funded by parents that meet minimum specification set by the school

**Considerations**
- □ Parents pay for the device
- □ Parents own the device
- □ Devices are able to be taken home and each student is responsible for their own device.
- □ Devices go with the students
- □ Student has a device they can use everyday
- □ Funded and supported by parent
- □ Parents are responsible for all maintenance and warranty calls.
- □ Parent are responsible for all warranty and accidental damage costs
- □ Parents choose device and purchase it themselves.
- □ No guarantee the device will be able to connect with school wifi infrastructure
- □ Teacher unfamiliar with variety of devices and programs
Appendix I – What the research says

**Student Learning and 1-to-1 Programs**

Argueta, Huff, Tingen and Corn (2011) in a study across six states in the United States revealed that teachers and students agreed laptops increased student engagement, with students reporting an increase in the amount of work they were doing both in and out of school. More importantly they saw the focus had shifted from teaching to learning. Rather than teachers controlling process and knowledge, students had become empowered learners and active proponents of their understanding and ability to connect ideas in new ways. They also found that “laptops have facilitated the development of 21st century skills e.g. digital literacy, creativity and innovation skills, critical thinking and problem solving skills, communication and collaboration, and self-directed learning among students.” (15)

Bebell and O’Dwyer (2010, 12) found that with increased student and teacher technology use, there was an increase in student engagement and interest levels, and modest increases in student achievement.

Soon to be released research by Howard (2013) on the DERNSW initiative is expected to show that significant changes to teacher pedagogy has occurred as a result of the 1:1 laptop program.

Dixon and Tierney (2012, 3) “see the purpose of 1-to-1 learning as being to create confident, flexible, self-directed, life long learners.”
## Research-Based Benefits of One-to-One Initiatives

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<th>Finding</th>
<th>Reported in*</th>
<th>Example</th>
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<td>Attendance and discipline rates improve.</td>
<td>Knezek &amp; Christensen, (2005); Light et al. (2002); Zucker &amp; McGhee, (2005)</td>
<td>Discipline referrals in Texas schools participating in a laptop initiative dropped, while referral rates in comparison schools increased. (Knezek &amp; Christensen, 2005)</td>
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<td>Students access a broader array of learning resources and experiences (including increased collaboration with others and increased use of technology for learning).</td>
<td>Lane (2003); Light, et al. (2002); Vahey &amp; Crawford (2002); Walker et al. (2000); Zucker &amp; McGhee, (2005)</td>
<td>Increased use of technology for educational use in school and at home; improved scores on writing assessment in the Microsoft/Toshiba Learning Anytime Anywhere Pilot (Walker et al., 2000).</td>
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<td>Relationship between teacher and student changes</td>
<td>Bobkoff &amp; Kratcoski, (2004-2005); Honey (2001); Sargent (2003); Light et al. (2002); Owen et al. (2005-2006); Zucker &amp; McGhee, (2005)</td>
<td>Students and teachers report increased frequency and quality of supportive individual and group interactions (Light et al., 2000).</td>
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<td>Student attitudes toward school improve.</td>
<td>Lane 2003; Vahey &amp; Crawford, (2002); Swan et al. (2005); Zucker &amp; McGhee, (2005)</td>
<td>Students and teacher survey responses show increased enthusiasm for school work in classes among participants in Palm’s Education Pioneers program (Vahey &amp; Crawford, 2002).</td>
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<td>Student achievement increases.</td>
<td>Gulek &amp; Demirtas, (2005); Light et al. (2002); Muir et al. (2004); Swan et al. (2005); Walker et al. (2000).</td>
<td>Schools implementing Maine’s laptop initiative for three years had significantly higher test scores than comparison schools in Science, Math, and Visual/Performing arts. (Muir et al., 2004).</td>
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*See the reference list for complete citations.
If you have specific questions please email the Contact Person below.

Contact Person: Mr Richard Southwell
Learning Technology Coordinator
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Please ensure you answer the parent/carer survey to inform the school of your opinions on this very important matter. The link to the survey was provided in the same email that alerted you to this information booklet. You need to complete the survey by Friday 16 August at the latest. Thank you.