One-to-one laptop program: Effect on boys' education

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One-to-one laptop program: Effect on boys’ education

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DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution.

To the best of my knowledge and belief this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed:

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ABSTRACT

Since the beginning of 1:1 laptop programs in schools there has been extensive research undertaken about the effectiveness of how laptops are used for teaching and learning. With an educational environment in Australia where the use of Information Communications Technology (ICT) is one of the five general capabilities of the Australian Curriculum, an expectation to use ICT effectively for teaching and learning is explicit. However, the use of laptops for teaching and learning is complex for teachers and students. Furthermore, parents are expected to support their child’s learning in a digital age where mobile devices for learning are common. Therefore, investigating parental involvement and perceptions was a significant feature of the study.

This report presents a three-year longitudinal study that examined the implementation of a student-owned 1:1 laptop program in a school for boys in Perth, Western Australia. The research tracked 196 students drawn from the junior (primary) and middle (secondary) schools, their families and associated teachers for a three year period. The focus on male students is purposeful. Understanding how male students use their laptops for learning can provide useful insights into the affordances and risks for schools and, in particular, the field of boys’ education. The aim of the research, therefore, was to describe and explain how boys use their laptops for learning in primary and middle school settings. Involving the whole school community in the research allowed for rich description and hopefully insightful explanation.

The research literature reports that the use of laptops for learning can increase motivation and engagement, improve technology proficiencies, provide enriched learning experiences, and help teaching and learning. The five research questions developed to guide the research were aimed at either endorsing or challenging these claims.

Underpinning this research was a mixed methods approach investigating how the boys used their laptops for learning, teachers’ pedagogical uses of laptops, implementation differences between a junior and middle school, and the possible
impact of the laptops on literacy and numeracy outcomes. A rich data set, collected over three years, and derived from qualitative and quantitative techniques, was interrogated in relation to the study’s research questions. The study’s longitudinal design provided further opportunities to triangulate data over the three years, enhancing the strength and reliability of the findings.

The novelty factor of laptops for learning quickly abated for both junior and middle school students. A two-pronged approach of providing targeted professional learning for staff coupled with confronting the obvious distraction that a 1:1 device can be for primary and middle school students, yielded positive outcomes. Students held strong views about the role, and effectiveness of a teacher when utilising their laptops for learning. Although teachers reported laptops were important for the teaching and learning program, there was a wide variation in the way teachers harnessed the 1:1 laptop environment for the benefit for student learning. Also, teachers were faced with pedagogical challenges in terms of considering games or Web 2.0 for learning. Literacy and numeracy outcomes based on national assessment results compared to national standards revealed the case study student participants performed favourably.

Four enablers for effective laptop use are theorised. These are: inquisitive students, creative teachers, proactive leaders, and national and state policy directions. However, five paradoxes potentially inhibited these enablers. These paradoxes are presented as ‘spanners’ in the cogs of effective 1:1 laptop initiatives: engagement and seduction of students; transformative and conservative pedagogical practices; integration and alienation of parents; autonomy and systemic dependency of schools; and, the hope and fear of Web 2.0.

The study may assist educational policy-makers, school leaders and teachers who are contemplating how to best integrate 1:1 laptop devices into the fabric of schools. A model is presented to provide new knowledge about the impacts of 1:1 devices on teaching and learning.
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GLOSSARY

ACARA

Australian Curriculum and Reporting Authority is an independent statutory authority responsible for national curriculum, assessment and reporting in Australia.

AITSL

Australian Institute for Teaching and School Leadership provides national leadership for the Australian, State and Territory Governments in promoting excellence in the profession of teaching and school leadership.

DEEWR

Department of Education Employment and Workplace Relations (Australian Commonwealth Government), as of 18 September 2013 now the Department of Education and the Department of Employment.

DEST

The Department of Education, Science and Training was an Australian Commonwealth Government service between November 2001 and December 2007.

Digital Education Revolution

An Australian funding initiative that sought to contribute sustainable and meaningful change to teaching and learning in Australian schools and prepare students for further education, training and to live and work in a digital world (DEEWR, 2009).

Epistemological beliefs

Beliefs about the nature of knowledge.

eSafe

Integrated forensic detection (key-logging) and reporting of ICT service based in the United Kingdom.
Gaming

Another term used to describe digital games.

Government schools

Schools that are predominantly funded by government; also called public or state schools.

ICSEA

Index for Community Socio-Educational Advantage is a measure used to make comparisons across Australian schools.

ICT

Information and communications technologies refers to any technologies used for processing information and communicating. ICT can include computers, mobile devices such as laptops, phones and iPods, electronic games and software (Selwyn, Potter, & Cranmer, 2010).

Junior School

An expression to describe a primary school where students range from Kindergarten to Year Six or from ages four to twelve. Primary schools in Australia are the main point of education before secondary school.

K-12

An expression describing the years of education between kindergarten and the final year (Year 12) of schooling in Australia.

Learning Federation

The Learning Federation (2001 to 2009) was a collaborative venture between Australia and New Zealand. It produced an extensive range of digital content, organised in subject areas for learning. The digital resources are now managed by Education Services Australia on behalf of all Education Ministers.
MCEETYA


Middle School

For this study middle school is an expression used to describe the first three years of secondary schooling.

NAPLAN

National Assessment Program for Literacy and Numeracy. All students in Australian schools who are in Years Three, Five, Seven, and Nine take part in this standardised assessment at the same time across Australia annually.

NSSCF

National Secondary School Computer Fund which in 2008 provided $2.4 billion for the provision of ICT equipment for all students in Year Nine to Twelve in Australia up until 2013.

OECD

Organisation for Economic Cooperation and Development is an international economic organisation focused on improving economic and social well-being of people across the world.

One-to-one or 1:1

Abbreviation for one laptop or device per student for learning.

Organising elements (ICT capability learning continuum)

Adapted from the original statements of learning released by the Australian Commonwealth Government in 2006 the five interrelated elements are identified as applying social and ethical protocols and practices when using ICT, investigating with ICT, creating with ICT, communicating with ICT, and managing and operating with ICT (ACARA, 2010).
Parental controls

An Apple computer based feature enabling parents to set up a range of monitoring features and time bound limiters as the administrator of the device.

Pragmatism

A set of philosophical tools that can be used to address problems (Biesta, 2010, p. 97).

Private schools

Schools that are predominantly funded by private sources. In Australia, these include Catholic and independent schools.

Public schools

Schools that are predominantly funded by government; also called government or state schools.

Statements of learning for ICT

Statements released by the Australian Commonwealth Government in 2006 that make explicit to teachers, the types of uses for ICT in education. Five categories are identified: inquiring, creating, communicating, and operating with ICT as well as ethics, and issues associated with ICT (MCEETYA, 2006).

State schools

Schools that are predominantly funded by government; also called government or public schools.

Student engagement

Refers to the level of interest, curiosity and optimism students show when they are learning (Abbott, 2014).
Twenty-First Century learning (21st Century learning)

Twenty-first century learning or as known in this study as 21st Century learning, is an approach to learning with a focus on complex thinking, learning and communication skills, and more difficult to teach compared to rote skills (Saavedra & Opfer, 2012).

WACE

Western Australian Certificate of Education is the certificate given to students who have completed Year 11 and Year 12 of their secondary school in the state of Western Australia.

Web 2.0

A second generation of web-based communities and hosted services, including social networking sites (e.g., blogs, wikis, Facebook, Twitter), that assist interactive information sharing and collaboration through the Web, where users can interact and edit information, and are popular with young people (Lenhart & Madden, 2005).