

Taking the plunge: Implementing a student iPad program

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This paper will outline one school's journey in introducing a "Bring Your Own iPad Program" in the junior secondary context. Essential elements of the rollout included research, communication, infrastructure and professional development required to improve teaching and learning. The Digital Education Revolution enabled our senior students to use technology as a learning tool. An equity issue became clear that junior students were disadvantaged. Teachers needed to adapt their teaching and learning practices to capitalise on the collaborative, creative and communication tools that were now available in the classroom. For some teachers it meant a shift from teacher-centred instruction to student-centred learning.

Background

The NMC Horizon Report: 2012 K-12 investigates emerging technologies that are predicted to be influential in educational environments within the next 5 years. This report highlighted the importance of mobile devices & apps, tablet computing and Personalised Learning Environments.

Mobile devices & apps are utilised as important learning tools in schools. Mobile devices & apps employ several technologies, communication, creativity and collaboration tools that make them useful for educational use (Johnson, Adams & Cummins, 2012 p. 14). Mobile technologies require new ways of learning and new pedagogies to prevent a void between school and real life experience (Bartlett-Bragg, 2013 p. 26). These technologies enable learning anywhere at anytime providing experiences that are active and engaging.

Tablet computing presents new opportunities to transform the learning experience. "Recent research indicates that tablets, because they are designed to easily share their screens, foster key 21st century skills in students including creativity, innovation, communication, and collaboration" (Johnson, Adams, and Cummins, 2012, p. 12). The iPad is light weight, compact, has long battery life and intuitive functionality incorporating a range of inexpensive educational apps enabling it to support a 21st century learning environment. This technology encourages critical thinking, communication, problem solving and time management skills.

The Horizon report further recognised the impact of Personalised Learning Environments (PLE's) on student learning. PLE's or eLearning portfolios provide the student with opportunities to gather and maintain tools that enable them to support their own learning both formally and informally (Johnson, Adams, and Cummins, 2012, p. 8). The new Australian curriculum general ICT capability sees ICT embedded across each KLA and emphasises the need for students to embrace the skills "to use ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively in all learning areas at school, and in their lives beyond school" (Australiancurriculum.edu.au, 2015). For this to occur our students needed to have access to technology preferably at school and at home.

For our classrooms to move into 21st century learning, it is not just our tools that need to change—it is our thinking about teaching and learning. (Lee, 2012) The International Society for Technology in Education identified student centred learning, empowering leaders, ongoing professional learning and access to equitable digital resources as key conditions to leverage learning with technology. (Iste.org, 2015) Resourcing for digital technologies includes both physical infrastructure, access to digital resources and professional development. Critical to the implementation process was teacher competence with technology. Professional development was planned around the TPACK framework. This model, which is included in Figure 1, approaches teacher competence with technology as unique to every educator, subject and local situation. (Participatoryactionresearch.net, 2015) Therefore a range of professional opportunities would need to be offered.

School Context

The school is a catholic systemic school comprising a junior campus (Years 7 to 10) and a senior campus (Years 11 to 12) with a total of 1100 students and approximately 80 teaching staff. Students in Years 10, 11 and 12 were participants in a 1 to 1 laptop program initiated under the Federal Government Digital Education Revolution funding. This situation created a dilemma as an inequity existed with access to technology for students in Years 7, 8 and 9. The division between students being able to benefit from a technology-rich learning environment to one where access to technology was limited and ad hoc at best was unacceptable. There was a growing concern amongst some members of the school community that all students should be able to be immersed in a 21st Century learning environment that promoted critical thinking, collaboration, creativity, problem solving and global communication.

As part of our research on how to best create a technology rich learning environment, members from the ICT committee joined an Apple iPad tour in Queensland. The tour visited Redlands College, St Hilda's, Kings College, Trinity Lutheran and Bounty Boulevard Public School. We were exposed to a range of options and cost considerations for implementation of the iPad. The most influential factor was the impact the iPad had on teaching and learning. Each school demonstrated a high level of student engagement which incorporated 21st century skills that were essential outcomes for a potential BYOD program. The decision was made to commence 2013 with a trial Bring Your Own iPad program for Year 7 students.

Two research questions guided the study:

How does teacher competence and willingness to “play” with technology improve with targeted professional development?

Using the SAMR and TPACK models, does a BYO iPad program enhance student-centred learning?

Methodology

The methodology for this study is Participant Action Research (PAR). In the PAR process "communities of inquiry and action evolve and address questions and issues that are significant for those who participate as co-researchers" (Reason & Bradbury, 2008, p. 1). The data collection was through minuted focus group meetings and observations. PAR, pictorially presented in Figure 2, enabled the school community to make informed

decisions about the program by working collaboratively to evaluate the positives and negatives of our progress based on real experience.

The data

There was evidence that student-centred learning at the school was enhanced with the use of iPad technology. Using the SAMR model – Substitution, Augmentation, Modification and Redefinition as an indicator, a paradigm shift in teaching and learning is visible (Hippasus.com. 2014). The SAMR Model is presented below in Figure 3.

Professional development modelled on SAMR and TPACK was offered to staff. Teachers were asked if they would undertake an iPad mentor role. To accommodate differing technological capabilities of staff, a range of professional development opportunities were made available to staff. Online 24/7 professional development was an option via Atomic learning. A blog “iPadology” was created for staff to share ideas, successes and concerns. iPad mentors worked with colleagues. iPad coffee afternoons were held to “show and tell” apps that were being trialled. Formal iPad meetings were conducted every second Wednesday before school to provide training for staff, implement iPad technology into teaching programs and gather ideas for the implementation process. One-to-one coaching was another option adopted by staff. Professional Learning Teams focussed on new pedagogies and technologies.

The adoption of the SAMR and TPACK models has made an impact on developing teacher competence and enhancing a student centred learning environment. Most teachers have progressed from designing tasks at the Substitution level eg. open a PDF document, create a keynote presentation. Teachers operating at the Augmentation level allowed students to collaborate on a Google document, submit a document to a shared Google drive folder or demonstrate understanding using the “Explain Everything app”. Moving along the continuum to Modification where tasks have been significantly redesigned, students create and scan QR codes, annotate digital documents using notability or Google docs or contribute to blogs that are published worldwide. There is evidence that some classrooms are at the Redefinition stage where students collaborate on a Google document to create class notes, students mind map and share concepts using Popplet, they develop a digital portfolio or create an iMovie and original music using Garageband and complete multimodal tasks.

A digital collection of resources was further developed to support the BYO iPad program to ensure students have access to quality resources 24/7. The core collection consists of Encyclopaedia Britannica, Ebsco Australia and New Zealand database, Science Reference Centre, History Reference Centre, Points of View and Student Resource Centre. A Libguide was developed to curate digital resources for teaching and learning. Social media tools such as twitter and Facebook are employed to promote resources. Clickview – a digital video storage network was upgraded to Clickview online to enable 24/7 online access to video resources that support the curriculum, accessible to both teachers and students. An eBook library was developed using Overdrive. iPad students have access to digital textbooks for Mathematics, Science, Religion and History. Moodle courses were expanded. Digital resources have not entirely replaced traditional modes of learning and resourcing. Students are still expected to handwrite, draw and communicate face to face. Teachers and students use technology as a tool when and where appropriate.

Findings

Teachers who were willing to “play” with the iPad, experiment and take advantage of professional development opportunities had a much greater chance of successfully redefining the classroom from a teacher centred classroom to a student centred approach. Some teachers who were resistant to implementing the iPad have had limited progression with technology. Teacher mindset has a significant impact on the level of integration within the classroom. This is significant regardless of teacher age. A mature senior teacher who was reluctant to use technology when the laptop program was introduced has become very comfortable using technology. They have employed new software to further enhance the use of technology with their students using the iPad. There are new and experienced teachers who are using technology at each level of the SAMR model. All staff are able to substitute technology. Many are operating at the augmentation and modification level. There is evidence that some teachers are competently working with students at the redefinition stage. The students who are using technology at modification and redefinition levels are increasingly working in a student centred learning environment where students are fully engaged in their own learning.

Conclusion

Teacher attitude, ICT skill competency and understanding of 21st century pedagogy have all affected the success of the iPad implementation and the increase in student centred learning. Some teachers are still resistant to implementing technology. There are many reasons for this, losing control of their authority in the classroom, fear that they will look “silly” in front of their students, unwilling to take on a facilitator role in the classroom. Teachers in this position need to take responsibility for upgrading their ICT competence and take advantage of professional development that is available for this purpose.

The modern classroom demands effective use of technology, mobile learning and effective pedagogy. TPACK, SAMR, effective resources and teacher attitude to technology are all critical components of successful implementation of a BYO iPad program. Those teachers who have embraced this are successfully employing the iPad in their teaching where student centred learning is enhanced. All teachers must embrace new pedagogies and technologies for the iPad program to be truly implemented.

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Appendix

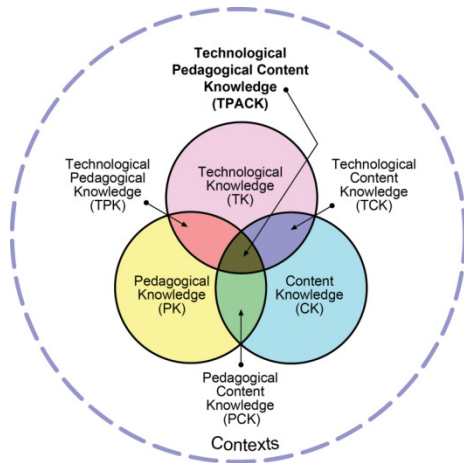


Figure 1. TPACK framework for Professional Development “Reproduced by permission of the publisher, © 2012 by tpack.org”

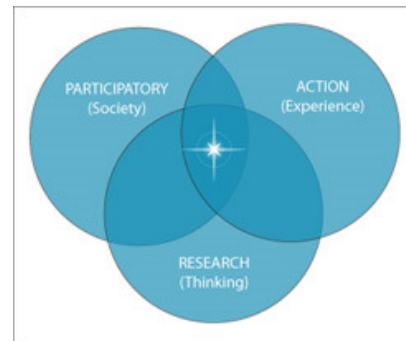


Figure 2. Model of participatory research (Participatoryactionresearch.net, 2015)

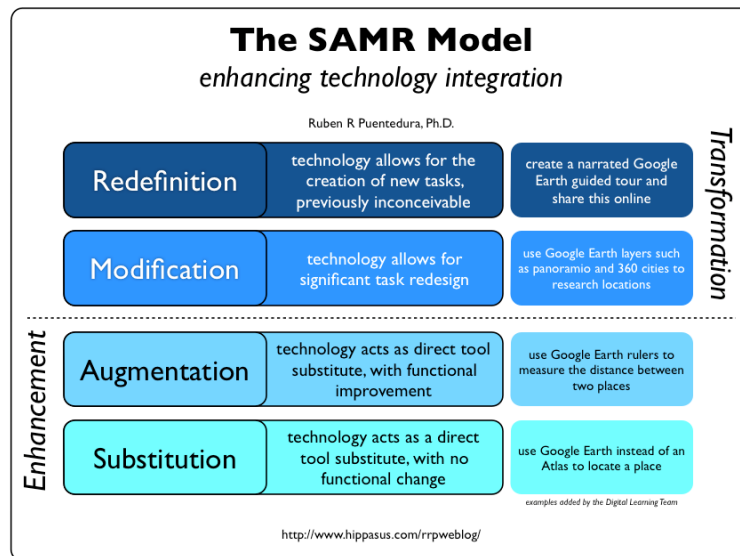


Figure 3. Teacher professional development was developed around the SAMR model (Hippasus.com, 2014)