FROM RADIO, TO SATELLITE, TO MLEARNING: INTERACTIVE DISTANCE EDUCATION IN AUSTRALIA

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ABSTRACT

This paper provides reflections on M-learning as a form of 'distance education', based on a summary of the findings of the Interactive Distance eLearning (IDL) research project in rural and remote Australia under an Australian Research Council Linkage grant. This project was a joint undertaking between 3 government agencies and an information technology service provider. The implementation of the IDL system to replace former School of the Air radio networks which traditionally supported distance education for school students living in remote NSW and the NT began in 2003 and was completed in 2012. IDL provides satellite-supported two-way broadband voice, Internet and one-way video for school age and adult distance education and is moving towards mLearning trials for some delivery centres. The education and training outcomes offer genuine hope to the thousands of participants spread across remote areas of NSW and the NT, allowing them to participate more fully, more meaningfully, and more productively at home, work and in society, despite the tangible difficulties and complexities of living in regional or rural Australia.

KEYWORDS

Remote rural distance interactive elearning

1. INTRODUCTION

Australia is a large continent and is home to some of the most geographically isolated communities in the world. This expanse, whilst central to a sense of place and identity in the Australian psyche (including the majority of Australians who live on the urban coastal fringe), is a source of educational marginalisation for Australian people living in rural and remote areas (Twyford and Crump, 2009).

The New South Wales (NSW) and the Northern Territory (NT) governments - a state and territory, respectively, of Australia - are attempting to address inequities for geographically isolated students by utilising technological advances in information and communications technology. One such initiative is satellite-delivered lessons, or Interactive Distance eLearning (IDL) as it is known, replacing lessons delivered via High Frequency (HF) radio for primary and secondary education. Launched in 2003, IDL has transformed the iconic *Schools of the Air* (SOTA) and improved provision of education services to isolated homesteads and remote Aboriginal communities. In 2009, experimental work was done to make the further shift to mLearning.

The introduction of lessons via radio in 1951 was an innovation of world-renown. But 50 years later the world had changed so much – in rural areas too – and technology advanced so much, that radio was not able to offer the quality of learning that isolated students desired and deserved. The shift from radio-delivered to satellite-delivered lessons, then to mLearning, has been an important development because we are a much more visual society than in the 1950s. Thus, knowledge has shifted from print to multi-media formats, is accessed instantaneously and can be short lived.

Thus, the focus for teaching and learning – not only in distance education – has shifted from students being expected to know content, to students knowing the skills to locate content, using information communication technology (ICT), relevant to the task at hand, and how to judge the worth and applicability of that information. This alone is an important new life-skill. For isolated learners and communities the essence of the change brought about by the introduction of IDL was the opening up of visual communication channels, vastly improved audio, and fast and reliable – in some cases initial – access to the Internet. Teachers can hear their students while students are able to see and hear their teacher and each other.

Using a shared application server controlled by their teacher, students can share applications that are not installed on their own computer. This technology enables students to actively participate and work collaboratively on a variety of tasks. The technology also supports an internal mail feature, the ability to share web links, PowerPoint presentations and other documents, as well as a quiz feature. Much of this can now occur though m-learning, either centrally managed or on a BYOD basis.

2. PROJECT AIMS

The project aim was "through observing IDL/SEP lessons we will develop a better understanding of how students, teachers, parents/tutors and others involved use the technology, what they feel about their engagement, and how these experiences influence their perceptions, satisfaction, behaviours, working practices, learning processes and outcomes." Three key areas were identified to explore these aims:

1. Curriculum: wider range of lesson activity, content and of sources for learning
2. Interactivity: two-way, collaborative learning, sharing work and informal contexts
3. Connectivity: literally and with the class, community and the rest of the world.

To better understand what was happening in IDL lessons the project looked at specific practices and practical differences in order to describe the outcomes through reference to 'activity theory' (Engeström, 1999). This theoretical orientation provided a framework for understanding learning as an activity that is inclusive of the learner and of each learner's knowledge and experiences. This framework also took into account the impact cultural characteristics can have on that learning activity. Data collection included documents, surveys, observations and interviews.

3. FINDINGS

During satellite lessons students share files and applications, visit websites and play educational Internet games. In descending order, IDL tools used during a lesson were IDL software features, Internet searching, word processing, desktop sharing, scanner, email, PowerPoint, audio-editing, multimedia, digital camera, webcam and graphics tablet. Students also use their school intranet site 'blogs' as well as email and a host of other social tools to communicate with each other between and after satellite lessons. Parent/tutor perceptions of the best thing about IDL lessons were:

- It helps them better understand the teacher's expectations of their child and the child to betterunderstand their teacher's expectations.
- The children are able to get together and share work and ideas with teachers and students.
- The children get to talk to their teachers and other students. They know that they're not the only one working.
- Interaction with teacher and classmates – students learn collaborative skills.
- It makes the children feel part of a class and a real school community.

Teachers explained the empowering factor was technology's ability to enhance interaction with peers, teachers and the topic.

[IDL] enhances our student/teacher relationship. [As teachers] we can meet outcomes and teach content more explicitly by making learning meaningful. The students are active participants in their own learning. It's great to be in such a challenging work environment!

An early finding was how parents and families feel less 'remote', not only for education, as access to the world-wide web allowed families to stay closer in touch with government initiatives and changes to policies and curriculum, as well as to explore – easily and quickly – educational issues around the world.

This new capacity for families to engage not only with their school but also the wider world was linked, anecdotally, to improved motivational effects on all ages regardless of socio-economic status and race. It also led to parents/tutors feeling more confident in supporting their child's learning.

Embarking on such a complex research project, we needed to be confident that we were looking for the right things in our three themes, as listed above. One student wrote in her survey response what we interpreted as a tidy summary of our hypothesised outcomes when she explained that, "… I gain positive practical skills [curriculum], a feeling of being included in the community [connectivity], and instant

interaction with others over a long distance [interactivity]." These three outcomes are occurring because the technology assists teachers to design activities that grab students' attention.

It is important to recognise that, in achieving what this student describes, teachers worked hard to create the feeling that they are in the same room with their students despite being scattered over as much as a million square kilometres. The experience is an example of authentic learning, where there is a 'live' feed to the class and it is demonstrably interactive and relational, not only teacher directed or transmitting knowledge down to the students. The result of having vision, being this engaged and interacting in real time was that, as one teacher put it, students became 'addicted' to the lessons. Outcomes for school age and adult VET students studying via IDL that can be discerned in our data include:

- Better quality distance education through access to real-time live satellite lessons; that is, teachers have created living classrooms.
- More detailed and varied content in satellite-based lesson material and activities, especially for subjects with substantial practical components such as beauty skills and commercial cookery.
- Customised courses designed to cater for specific rural and remote community needs.
- Higher levels of engagement in lessons through an array of computer-based programs, tools and applications being available for teachers and students to increase interactivity and connectivity in the lesson.
- People better prepared for employment and/or further study in a way not possible before the introduction of IDL.
- Enhancing the skills base of parents to assist their children studying with a SOTA/DEC.
- An increase in digital literacy.
- Greater connectedness locally and globally through enhancing communication channels and access to countless experiences and sources of knowledge only available through the worldwide web.

4. THE FUTURE OF IDL

The IDL program has allowed schooling to be done differently and better for hundreds of individuals and scores of communities that were significantly deprived of access to education and training because of where they live, before satellite delivery was provided. IDL offers real and tangible hope to these people and communities as they gain qualifications and skills only able to be dreamt of beforehand. IDL is also informing the shift to ICT in mainstream classrooms, as a senior education departmental figure explained:

I believe the work that's happened in this project has influenced policy and thinking around how students learn; that students can be collective learners, they do not need to be in the same place to learn (…) it I isn't [just] a 'solution' for distance education; it's a way of connecting [any] learners.

One key conclusion from all participants was teaching practices need to develop alongside technological changes. Interactive distance elearning is a fluid and dynamic environment and these expectations and evolutions are a challenge to all involved in its future. Changes related to M-learning include the ability to adopt and adapt social media and technology, ready-to-hand, web-enabled mobile phones and tablets, that provide students of all ages with 24/7 access to learning resources and are underpinned by sound learning theory principles. IT applications are only as good as the user, and only any good if the user can access them over a reliable, fast and inexpensive network.

For education and training, with expectations of multi-tasking, strong overlap between personal and education use of technology, active engagement on one's own learning, and – especially for those who have grown up 'digital', customisation is crucial, as well as collaboration, innovation and, finally, fun! M-Learning offers the opportunity for distance education to combine content and modes of delivery n a way that also mergers local with global, and this reduces the learners reliance on the teacher(s). The only qualification is that m-learning remains a high cost option for young people, the very generation that can benefit most. Governments as well as private business need to find a solution, and fast.

5. LESSONS FOR POLICY AND PRACTICE

The vast majority of participants in this study were enthusiastic, involved, committed, hardy and innovative, whether in the IDL leadership and management level, teaching in the studio, at the other end (homestead or community school) or other role and location. In this context, people come and go, sometimes without bringing to completion what they set out to do. This is part and parcel of living and working in regional Australia. In the three years since the ARC "Opening our Eyes" research project began there are few original staff still active in IDL – yet the pioneering spirit prevails. The rollout and successful implementation of IDL would never have happened without the energy, focus and determination of all those who contributed, not only to our study. The participants in IDL have been an exemplar of what Wenger calls a 'community of practice'; that is, where a group of people share a passion for something they know how to do and interact regularly to learn how to do it better.

6. REFLECTIONS

What needs researching now is how most people's first interaction with the internet will be on mobile devices, and on a global scale (e.g., Somalia's excellent 3G network despite the country's political disruption). Governments and service providers need to transition to working our how this will impact 'distance education' for whole populations, through asking how to provide people with real educational opportunities when all they have is a low-grade mobile phone. Future research topics and issues include: What are the subsequent consequences for distance pedagogy? What opportunities could this bring and what challenges will people face? How can mLearning be a real world (and therefore, word) bringing about positive change for those learning remotely so they can leverage this newfound advantage?

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