OK remote WA, we're listening... but can you hear us?

Part 1: looking back to 2001

ABSTRACT

This paper is the first in a two part series, this first part describes the findings from visits to two isolated and remote schools in the far north of Western Australia in 2001, the second part to be published in the next issue of AEC will describe a visit to the same schools in late 2003 to see what has changed. Parts of this first paper were originally published as Online or Out of Reach, (Rabbitt E. and Pagram J., 2001).

As we move into the 21st century, higher education institutions in Australia and around the world are undergoing a transition. The trend is to move away from traditional methods of course presentation towards online methodologies. In theory, students within isolated and remote areas of Australia and around the world no longer need to relocate to major cities and educational institutions as they have access to learning opportunities online. The schools were visited in order to determine how practical this approach to education is in the ‘real’ world. The results from 2001 suggested that in many parts of northern Australia access to these new courses was limited by the telecommunications infrastructure in place.

INTRODUCTION

Technological advances over the last millennium have helped to break down communication barriers between city and country. Remote areas are no longer considered to be so isolated with the advent of new technologies. But on a practical level is this the case?

This paper describes a research project undertaken in 2001 in which two remote North Western Australian Primary schools were the setting. The schools were visited to determine if it would be possible for a teacher (and others) to undertake further study using online materials.

More and more tertiary distance education units are moving online, with the incorporation of online study guides, with streamed video, chat groups and video conferencing. These features are intended to make the units much more dynamic and help to make the learning experiences of the external student more like those of the on campus student.

In many small, communities in remote north Western Australian the local school has the best connection to the Internet. This makes it the logical location for a tertiary, distance education student to use when undertaking an online unit. The term communities in this context refer to Aboriginal communities in north Western Australia. These communities vary in size and in general terms may be equated to a small village in other parts of the world. Services available in communities vary according to the population size and distance from a township. In north Western Australia it is not unusual for a community to have an office administration building where mail is collected and received, and messages can be left for community members. Few homes within the community have their own phone but they usually have electricity and running water. Some communities may have an airstrip, general store, medical services and police presence while others do not have any of these services. Communities have to generate their power supply. Fuel and general supplies are transported by roadtrains, weather permitting, as access roads are usually not more than a dirt track. All communities have a Chairperson and committee of representatives that
makes decisions. Most communities have a school, which becomes the education centre of the community.

For the purpose of this research, with the cooperation of the teachers in the selected schools, tests were made to determine the practicality of using online materials and tools or whether students trying to study in these areas are in danger of dropping into the ‘widen ing digital divide’.

**EXTERNAL (DISTANCE) EDUCATION ISSUES**

The learning styles of external students in remote areas differ from the pedagogy surrounding the modes of study offered by mainstream universities throughout Australia. For many students there are no alternatives for study other than the external mode, due to isolation, ties to the family, community and land, and the sheer expense of relocating. For many Aboriginal students the difficulties of interpreting external course work is compounded by the lack of culturally appropriate materials. There is little acknowledgment that Standard Australian English is not their first language.

The major difficulty of external course work is interpreting materials. This takes hours of self-disciplined reading to ascertain requirements for a successful completion of the unit. Careful forward planning for the whole semester has to be undertaken. It is imperative that a work programme is devised with realistic goals for weekly success. A calendar of important dates has to be referred to regularly. Adequate time needs to be allowed for requests for resources to be processed and delivered, to ensure assignments can be completed by the due dates.

External students of necessity become independent learners without a minimum of relevant personal human interaction. The depersonalised nature of communication between the external student and their lecturer is exemplified with the use of ‘voice mail’, ‘snail mail’ and ‘email’. These methods of communication all impinge upon the students learning experience and consequently educational outcomes. The pendulum swing between success and failure may depend upon the quality and relevance of the course work, the availability of the lecturer and the determination and commitment of the student.

Employers, however seek graduates with the ability to work effectively in teams, with specialist knowledge and problem-solving skills. At present, there is limited opportunity for off-campus students to interact, work cooperatively and communicate with other students in their units. In contrast most units in on-campus mode are workshop-based, emphasise team and group work, and use a variety of assessment modes. In particular, off-campus students have traditionally been denied the ‘experience of community’ available to on-campus students. The external student has traditionally worked alone with paper based resources. This means that two students completing the same unit, one in internal mode and one in external can have very different learning experiences.

Australia’s universities have reacted to this ongoing problem by embracing the Internet with gusto, placing any and all units online. This has been done at various levels. The enthusiasm for the Internet is not always reflected in the quality of course material. Presentation can be from the straight conversion of paper based materials to Web pages with scant, if any regard to pedagogy, to the use of the web as an online teaching tool (Pagam, J, Rabbitt E., Fetherston T., April 2000).

The new university paradigm for distance education is one that follows the computer industry ‘client-server’ model. The university is the server of these courses and the students are the remote clients. Edith Cowan University being based in the largest and most sparsely populated state of Australia, potentially has some very remote clients indeed.

The researchers set out to revisit some past graduates from Edith Cowan University who had been the subject of a previous research project. These teachers had as part of their undergraduate degree been taught with and how to use a wide variety of online technologies. (Pagam, J, Rabbitt E., Fetherston T., May 2000). These students were, in 2001, in their second year of teaching and were potential candidates for Edith Cowan’s Master of Education (MEd) online programme. In this course the entire MEd by coursework is studied on the Internet.

**METHODOLOGY**

This involved the researchers visiting two remote schools:

- To understand and determine the type of facilities available such as what equipment is available and being used in these teachers’ classrooms
- To determine the quality of Internet access in the schools.

Data was collected by:

- Site visits to undertake a situation analysis
- Tests of the schools’ Internet connection
- Interviews with teachers and school principals
- Questionnaire
BACKGROUND

The Kimberley Region is Western Australia's most northern region. Covering an area of 421,451 square kilometres, it is one of Australia's most isolated and remote areas. In 1998 the Australian Bureau of Statistics (ABS) estimated the Kimberley population to be 27,716. Approximately 46% of the population are Aboriginal or Torres Strait Islander. There are six towns and around 25 large Aboriginal communities. Broome is the largest town with an estimated population of 10,303 in 1998. During the winter months, from May through to October the population rises with an influx of a large number of short term visitors, associated with the tourist industry.

SETTINGS OF THE SCHOOLS

SCHOOL ONE:
The school is a three teacher primary school. This included the principal who taught physical education and maths. In 2001 there were 33 students at the school that caters for pre primary students through to year 7. The school is 27 kilometres by unsealed road from the nearest town with a population of 1300 people. It is 2,500 kilometres from the state capital and head office administration base. As it is situated within a kilometre from one of Australia's major river systems, it is not unusual for the community to be flooded during the 'wet' season from November through to April. The road access becomes impassable and community members have to stock up on supplies as there is no operating community store. The major form of communication is the telephone.

Computers

The two classrooms were well equipped for the size of school. Classroom 1 had 8 iMacs (one of which is a DV model), one Performa and 2 Winet PCs' one of which was used for school administration. The teacher used an iBook for lesson preparation and record keeping. All computers in this classroom were networked and had access to the Internet. Classroom 2 is less well equipped with 4 non-networked Macintosh Performa computers.

Other computer tools

Both classrooms had laser printers and shared a digital still camera and a digital video camera. An Airport wireless hub was used to connect the teachers laptop and some classroom machines to the network.

Internet connection

The school's small Ethernet network was connected to the Internet by means of a router and 56K modem which connects via a radio telephone system. This connection is very slow and intermittent, and its speed varies with atmospheric conditions. At the time of visiting the speed appeared to be around 28K. The teacher commented that the observed speeds were about average and rarely improved. Consistency of connection was also noted, with the connection speed and existence varying from day to day and hour to hour. This was often due to factors such as fluctuations in the power supply, storms and other atmospheric conditions. Because of this the teachers noted that the phone was the most reliable and preferred method of communication and they didn't always check their email.

INTERNET CONNECTION TESTS

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email (Sending and receiving with attachments)</td>
<td>Able to send and receive without problem</td>
</tr>
<tr>
<td>Web surfing (Perth based ECU sites)</td>
<td>So slow that navigating the sites was impractical.</td>
</tr>
<tr>
<td>Web download (1.2 meg from a US server)</td>
<td>The download failed with a time out error</td>
</tr>
<tr>
<td>Connection to a file server (Perth based)</td>
<td>Connection successful but download too slow to be usable</td>
</tr>
<tr>
<td>Video conferencing (with ECU Perth)</td>
<td>No video, distorted, unusable audio and a working chat window</td>
</tr>
</tbody>
</table>

SCHOOL TWO:

School two is a larger school with 160 children. In 2001 there were 12 teachers plus the principal. This school is 180 kilometres from the nearest town with a population of approximately 12,000 people. There is only one, unsealed, 13 kilometre road into the community. It is 1,500 kilometres from the state capital and head office administration base. The major form of communication is the telephone.

Computers

Classrooms were equipped with two iMac computers and one iBook intended for teacher use for lesson preparation and record keeping. None of the computers in the school were networked although this was planned for the very near future as is internet access in each classroom.

Other computer tools

None of the classrooms had a printer but each was provided with a digital camera.

Internet connection

In 2001 the schools single Internet equipped computer was located in the school library. This computer was connected to the Internet by means of a 56K modem which connected via a radio telephone system. This connection was very slow, intermittent and its speed varied with atmospheric conditions. At the time of visiting the connection had just been repaired due to cyclone damage.
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CONCLUSIONS

In 2001 these teachers in many ways represented the ideal online Med students. They were highly computer literate and had access to computers that they were familiar with. They had all been trained on Macintosh computers and were all using them both in their teaching and for their personal computer (Pagram J, Rabbitt E., 2001, September). However in 2001 none of these students could undertake an online course. The most modest online unit makes use of web based material, made up of a combination textual and pictorial elements, combined with an online bulletin board system. The more sophisticated units add to this synchronous technologies, such as video conferencing and video streaming and interactive multimedia elements. None of these elements were available over the sort of Internet connection available at these schools.

The schools Internet connections were made via radio based analog systems, which were inadequate to undertake the task. Reliable Internet access is particularly important in smaller communities where the local school is the focal point not only for learning but also for access to the outside world, through the window of the Internet.

Universities and other providers need to be aware that beyond the major centres Internet based courses are far from a higher education panacea and can be impossible to achieve.

Online learning providers should not assume that because Australia is a developed country that all communities in Australia have equality of access to Information and Communication Technologies. Instructional designers and educators should note that with the current trend towards e-learning that there is a danger of widening the digital divide between rural, remote and city students.

Online learning Web site designers need to be aware that connection speeds for e-learners in isolated areas are not necessarily on par with their city counterparts. Thus learning resources need to be designed for either a low bandwidth or designed with user selectable high or low bandwidth versions.

At the time of undertaking this first research visit the State and Federal governments were in the process of planning to address the issue of internet access for the bush. In the second article of this series we will again revisit the same schools two years later (2003) to determine what has changed.

REFERENCES


