CULTUREPAD: CONNECTING ABORIGINAL CHILDREN, AND SCHOOL TO ABORIGINAL LANGUAGE AND CULTURE THROUGH THE USE OF TECHNOLOGY

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Abstract

Language is an essential feature of culture and identity, and important in instilling a sense of well-being and belonging for many Aboriginal and Torres Strait Islander people. Yet most traditional Australian languages are in serious decline, while English language literacy levels among Aboriginal children remain well below those for other Australians. The project was set in two remote Aboriginal communities in the Western Australian Kimberley region.

This unique project aimed to connect Aboriginal children, their community and school to local Aboriginal language and culture through the innovative use of technology, while simultaneously developing skills in standard English. An interactive digital tool known as CulturePad was developed running upon Apple iPad hardware to promote local language, English and digital literacy skills without the need for internet access. Oral and written language was captured and recorded locally and made readily shareable within and between communities. Preliminary findings have shown CulturePad sustains the interest and engagement of Aboriginal children, teachers and community-based Aboriginal educators in oral and written language development, and has great potential as a catalyst for building stronger partnerships between schools and communities and improving Aboriginal students’ engagement in education in remote areas.

Keywords: Remote Education, Culture, Mobile Computing, language learning.

1 INTRODUCTION

Low levels of school attendance and achievement among Aboriginal students in remote areas present significant challenges for schools and communities. This unique project aimed to improve educational engagement in remote areas by connecting Aboriginal children, their community and school to local Aboriginal language and culture through the innovative use of technology, while simultaneously developing skills in standard English. Research shows digital technologies engage Aboriginal students in learning and provide a greater sense of control by allowing them to work at their own pace and level. Yet technology is less readily accessible in remote communities, and the internet in particular may be seen as detrimental to Aboriginal culture in giving access to negative influences such as gambling and pornography. Our solution: a readily accessible digital tool that promotes local language, English and digital literacy skills without the need for internet access. Oral and written language is captured and recorded locally and made readily shareable within and between communities.

This paper describes a project that developed a digital tool known as CulturePad. The project was a collaboration between the Centre for Schooling and Learning Technologies at Edith Cowan University and the Association for Independent Schools Western Australia. The intention was to build stronger connections between school and community through the targeted implementation of a custom-built Filemaker Pro database on the Apple iPad tablet computer that would enable students to use visual, artistic and storytelling activities to engage with and record cultural knowledge and artifacts within their local community whilst also building crucial skills in ICT and literacy.

2 BACKGROUND

This study was undertaken in a 423,500 square kilometre remote part of Western Australia called the Kimberley region, which is located approximately 2,000km north of the state capital, Perth which itself is the most isolated continental capital in the world. As can be seen from Figure 1 the overall population of the region is very low (approx. 50,000 people). This equates to 0.12 people per square kilometre. However, Figure 2 shows that there is a high density of Aboriginal people in this area.
despite it being considered as very remote Australia. The Kimberley has a tropical monsoon climate with only two seasons – wet and dry, and this limits accessibility as extensive flooding occurs during the wet season making it impossible to travel by road to remote communities (additionally cyclones are not uncommon). Temperatures in the dry season can reach up to 48°C making it one of the hottest parts of Australia. Outside of major towns most settlements consist of Aboriginal people and are called communities. These are isolated from major roads and are cut off from most basic services and have limited internet access - see Figure 3.

The Kimberley region with its climate, isolation and technological challenges was chosen by the researchers at the setting for the CulturePad study as Edith Cowan University, through the Association for Independent Schools Western Australia (AISWA) had contact with the schools in the region. These schools were located in Aboriginal communities and teach the Western Australian Curriculum in English. Often in these settings teachers are sourced from Perth and have little connection to, or understanding of, local Aboriginal culture. In fact there is no one Aboriginal people or single culture and more than 400 distinct Aboriginal peoples have been identified across the continent. This makes teaching in these communities a very challenging prospect. It was in this setting that the researchers set out to bridge the gap between the local schools and Aboriginal community through the use of mobile technologies, specifically the Apple iPad.

![Figure 1. The Kimberley region of Western Australia.](image1)

![Figure 2. Remoteness of regions in Australia. Dots represent density of Aboriginal population.](image2)
3 LITERATURE REVIEW

Since 2009 there has been a commitment by all Australian governments to implement a strategy called ‘Closing the Gap’ which is designed to improve Aboriginal and Torres Strait Islander well-being over a 25 year period, with the ultimate aim of achieving health-equality with the rest of Australia’s population. More specifically this ongoing strategy is targeting life expectancy, child mortality, access to early childhood education, educational achievement, and employment outcomes [1, 2]. A key aspect of Closing the Gap is improving education for Aboriginal students and both private and government bodies have attempted to do this through the implementation of information and communications technologies (ICT) into the Australian school system [3, 4]. However, in remote communities where many Aboriginal students attend school these implementations are more likely to fail [5, 6]. Two possible reasons (among many) for the failure of these interventions are firstly, that technological interventions often fail to take into account the culture of the Aboriginal students [7], and secondly, that community elders may perceive ICT, and the internet in particular, as a gateway to pornography and gambling further destroying traditional life [8, 9]. Furthermore, often the school is not seen as an integral part of the local community [9]. Schools are often fenced off from the local community and school staff lead lives very much separated from the community and often have little knowledge of local Aboriginal culture and way. Additionally, these staff are often unprepared for the challenges of teaching in a remote Aboriginal community and rarely stay for any extended tenure in the school. Given these difficulties it is no surprise that initiatives such as the One Laptop Per Child Program did not achieve their desired success [4]. In the experience of the current researchers computers in these schools are underutilised and in one instance computers were found locked away in cupboards.

Researchers in the current project attempted to minimise the difficulties mentioned above through the utilisation of the following conceptual overview (see Figure 4). Particularly targeted was the right section of the diagram – Engagement and Connections. The researchers attempted to develop a relationship between the community and also between these bodies and the ECU research team. During the implementation of CulturePad the children collected local stories using a custom-designed iPad database with the aim of enhancing cultural identity and pride within the safety of a familiar environment.
4 METHODOLOGY

This study demonstrated a novel approach to the introduction of technology to the Aboriginal student’s classroom. A key aspect of the methodology was to ensure the local community had sufficient ownership of, and input into, the project. In this regard there have been many research designs proposed for working with Aboriginal communities. A development-evaluation design as shown in Figure 5 was considered appropriate. For this project we used the model laid out in *What Works, The Work Program. Sustainable School and Community Partnerships* – a research study published by the National Curriculum Services in February 2013.

Two schools and associated communities from the Kimberley region were recruited. From each school one class (approximately 20 students) and their teacher were invited by the Principal to be involved in the project. The schools are members of the Association of Independent Schools of WA (AISWA). Key members of the local community (Elders) were contacted either through the school Aboriginal Education Workers (AEW) or through our own Aboriginal advisor.

The study had a development-evaluation research design that employed qualitative research methods. Formative data were collected from the school principal, teachers, school Aboriginal education workers and students. These data consisted of pre and post-surveys, interviews, focus groups, and observational school visits. Researchers spent at least one day in the community on each visit. Interviews were audio recorded.
The focus of the research was on the implementation process and educational outcomes, not the information recorded. Thus, the information/content collected on the iPads remained the property of the students and local community. This approach acknowledged that the local Aboriginal people own their culture, language and stories. What the researchers were interested in was how well the technology could be integrated into learning via the partnership between the community and the curriculum model in place at the school.

In summary, the method for this project involved:

- Community consultations
- Consultations with local primary schools
- Trial and refinement of an iPad-based Filemaker Pro databases
- Ongoing engagement with the community at all levels of the project
- Development and establishment of an agreed partnerships between relevant stakeholders

5 APPLICATIONS DEVELOPED

Initially the researchers set out to develop one application to support cultural integration between school and community. However, in early discussions with schools it became evident that the unique features of the school, community and teachers’ academic goals meant that a single application would be inadequate. Fortunately the development tool (Filemaker) lent itself to customisation and a number of applications were developed. As the primacy of the AEWs became evident the development switched toward a more cultural focus while remaining overtly educational. This included apps to support local language learning and integration of cartographic information showing areas of significance to the local people. Figure 6 and 7 shows screens from one of the 5 applications developed.

![CulturePad Junior - Kulkarriya Community School](image)

*Figure 6. Example CulturePad iPad version.*
6 FINDINGS

Over the course of the project it became evident that the critical participants were the AEWs as they represent the intersection between the local culture and the school (see Figure 8).

![Figure 7. Example screens from CulturePad application iPhone version.](image)

![Figure 8: AEWs form the bridge between local culture and school.](image)

At its inception, the project focused on participation from academic school staff. However, it became evident that when teachers and principals are the main driving force the focus understandably is on curriculum. It was found that when community members who are also part of the school community, such as the AEWs, become the driving force then the focus is able to shift toward supporting local culture and community. In this setting educational aims do not become compromised but opportunities more easily arise to address local language and other cultural aspects. This is illustrated in Figure 9 below. Thus future projects that are addressing culture should place emphasis on the AEWs for implementation and support. Additionally, teachers were exposed to an innovative pedagogical approach to integrating ICT into learning in an authentic fashion.
While the two schools in the project tended to have satisfactory ICT infrastructure and owned iPads and other devices, internet access in this region is still problematic. This means that application developers and researchers should ensure that software does not have reliance upon an internet connection. The apps developed during this project were self-contained and data were stored locally, which proved to be an effective approach. Having an iPad-based approach requires a lower level of technical support compared to a computer-based solution, which is advantageous in remote schools with little or no local ICT support.

During the project's two-year lifecycle there were great changes to the academic staff in the schools involved. This is common for schools in remote regions, however, the one staffing constant within these schools is the Aboriginal Education Workers who being part of the local community are likely to remain at the school for a long period of time. Therefore, they are the key people to cooperate with when implementing any project that is hoped to have a long-term impact.

While remote project communications with the schools have been generally good, enthusiasm for the project can lag without regular face-to-face contact. This is particularly the case when assisting AEWs, and this may reflect cultural preferences for face-to-face exchanges.

7 CONCLUSIONS

The choice of the iPad and a local app-based solution (Filemaker) that was not distributed via the Apple App Store has been effective and convenient. The developed apps could be emailed to the school and immediately accessed on the iPads without the involvement of a third party. This also allowed for confidentiality of the data including the cultural artefacts created by the students. So far the project has shown the potential for both the method of development and deployment. Also a solution that was not internet dependent has be found to have been the only workable choice in this region which has such poor infrastructure.

The main difficulties identified confronting this and similar types of projects in remote regions such as the Kimberley are:

- Lack of local IT and educational support (due to their remote location);
- Need for face-to-face communication between researchers/developers and school staff;
- Staff limited ICT knowledge;
- Staff turnover;
- Consistency of internet connection;
- Access to the communities (due to both climate and road conditions, access to some communities is limited to the dry season only).

Overcoming these and having a solution that continues beyond the life of the project is problematic. Local ownership and a local champion of any project is a must. This project clearly showed that working through community-based Aboriginal educators is the key to community engagement: they are typically the longest serving staff in remote schools and represent the intersection between local culture and the school. This preliminary research has shown CulturePad sustains the interest and engagement of Aboriginal children, teachers and community-based Aboriginal educators in oral and written language development, and has great potential as a catalyst for building stronger partnerships.
between schools and communities and improving Aboriginal students' engagement in education in remote areas.

The project described here is an ongoing one and further funding is currently being applied for. In the next phase development will be refined with an emphasis on Aboriginal languages and links to science, Technology, English and Maths (STEM). Thus it is important to ensure CulturePad continues to be cross-grade and cross-curricula. The next phase project will also create a (community-controlled) sharing repository to facilitate distribution of the software and language/cultural resources collected via CulturePad.

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REFERENCES


