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Establishing design principles for online synchronous literacy learning for indigenous learners

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Establishing Design Principles for Online Synchronous Literacy Learning for Indigenous Learners

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Abstract: Synchronous learning has the potential to provide literacy and essential skills training to Indigenous learners living in remote and isolated communities. Although there is considerable research completed in the area of internet-based learning technologies in general, there is very little research in the area of online synchronous learning opportunities for remote Indigenous learners. This paper presents the results and theoretical framework of the first and second phases of a four phase design-based research approach that aims to establish design principles to guide the future development of synchronous online literacy services for Indigenous learners living in remote Australian communities.

Introduction

In the 2006 Australian Census, 19% of Indigenous adults had completed high school (Year 12) versus 45% of non-Indigenous adults (Australian Bureau of Statistics, 2006). The employment rate for Indigenous Australians is also lower than for non-Indigenous Australians, and Indigenous Australians are among those least likely to progress to higher education (McMillan & Marks, 2003).

The statistics indicate a substantial gap in literacy and basic skills between Indigenous and non-Indigenous populations. These differences in literacy skill levels alongside the lack of appropriate employment and training opportunities for Indigenous communities noted by Kral and Schwab (2003), Eady (2004), and Greenall (2005), have prompted practitioners, agencies and government officials alike to address and act on this issue, including examining the potential of synchronous learning in this area.

Synchronous Learning

Synchronous learning is when learners and instructors are exchanging information and interacting simultaneously in an online learning community in real time with learning technologies including Internet conferencing, satellite broadcast, video teleconferencing and interactive chat rooms and/or communication systems (Greenall & Loizides, 2001). Synchronous learning has the capability to incorporate many learning strategies within its delivery (Greenall & Loizides, 2001). When working with Indigenous learners in particular, researchers have argued that practitioners should consider the various ways in which Indigenous people have historically approached their learning in order to provide the best approach to adult literacy skill acquisition for the Indigenous learner (Antone et al, 2002; George, 1998). Research with Indigenous cultures indicates that knowledge is often transferred through an oral tradition: including speech, story telling, song, and dance (Eagles, Woodward, & Pope, 2005). Audio and visual curriculum then becomes a key element to consider in attempts to incorporate cultural components into lesson design and delivery for remote learners. Additionally, when learners are not fluent in English, the uses of audio and visual elements have the potential to provide Indigenous language development for those who live in remote communities (AISR, 2006; Daniels, 2003; Sawyer, 2004). Despite the evidence of positive impacts of well used learning technologies on learner skill attainment in general, significantly less research has been focused on the
impacts and outcomes of Indigenous initiatives specifically for adult literacy in remote areas (AISR, 2006; Greenall & Loizides, 2001; Kral & Schwab, 2003).

**Indigenous Literacy**

The term Indigenous literacy may be a relatively new term for many literacy practitioners however it is important to note that each Indigenous community possesses a set of unique cultures, language dialects, traditions, stories and people; and some practitioners feel that it is important to go to the source, to the community itself, to understand the literacy needs for the community. The view of some Indigenous groups is that it is of great importance that they be included from the onset of the literacy engagement and that they are asked what literacy means to their community and what aspects of literacy are important to their language group.

Perhaps a good starting point comes from Canada where well respected and recognized Indigenous Elders and teachers have attempted to define Indigenous literacy. Recognized as more than acquiring skills to get a better job or to obtain higher education, literacy is recognized in the Indigenous community as a multi-faceted process, which is essential to maintaining culture and language (Antone et al, 2002). Priscilla George/Ningwakwe is known for her description of Indigenous literacy:

Indigenous literacy is a tool, which empowers the spirit of Indigenous people. Indigenous literacy services recognize and affirm the unique cultures of Indigenous Peoples and the interconnectedness of all aspects of creation. As part of a life-long path of learning, Indigenous literacy contributes to the development of self-knowledge and critical thinking. It is a continuum of skills that encompasses reading, writing, numeracy, speaking, good study habits and communication in other forms of language as needed. Based on the experience, abilities and goals of learners, Indigenous literacy fosters and promotes achievement and a sense of purpose, which are both central to self-determination (George, 1998, p.6).

There have been reports that suggest literacy practitioners working with Indigenous learners have found synchronous learning platforms to be successful in teaching employment-related skills, with the added benefit of learners increasing their computer skills while at the same time acquiring literacy outcomes (Greenall, 2005; Johnston, Petty, & Shafer, 2004; O’Lawrence; 2006; Porter & Sturm, 2006). Reports suggest that online learning programs, when designed and delivered in culturally appropriate and community-relevant manners, can be potential solutions to effectively address the unique learning and skills development needs of Indigenous learners (Battiste, 2005; Greenall, 2005).

The affordances of synchronous activities such as real time discussions, group work, interactive white boards and video feed, led the authors to focus on the following research areas. How can synchronous learning support the community’s definition of literacy and the particular needs of that community? How can we ensure that a synchronous tool is a viable solution to fill an identified need for literacy support? From these general questions the following formal research questions were devised:

1. What are the literacy needs of Indigenous communities?
   1.1. What are the perceived needs and approaches to these needs as shown in the literature?
   1.2. What do literacy practitioners perceive to be the literacy needs in Indigenous communities?
2. What are the self-identified literacy needs in an Indigenous community?
   2.1. What are the literacy needs of an Indigenous community as perceived by community members?
   2.2. What types of support systems are available to the community?
3. How can self-identified literacy needs for an Indigenous community be supported by online synchronous learning technologies?

**Methodology**

These research questions are being addressed through a qualitative study, using a design-based research approach. Design-based research combines the creation of solutions to problems in learning environments and results in principles that can be applied to future research practices and investigations (Herrington, McKenney, Reeves, & Oliver, 2007). The design-based research approach is well suited to this study as it is pragmatic and takes...
into account the practitioners’ experiences and expertise and combines them with the literature reviewed. This will result in a detailed and relevant analysis of both the literature and practitioners’ views in the development of the formalized research questions. Figure 1 provides an overview of the four stages of design-based research.

Results and Discussion

At this point in the research phases 1 and 2 have are near completion with phases 3 and 4 ongoing through 2010. The phases and ongoing outcomes of the approach are described as follows:

Phase 1

An ongoing and extensive literature review is taking place. Key words used in database searches to identify relevant literature (1996-2009) include: online and synchronous learning and technology, literacy and basic skills, Indigenous and Aboriginal peoples and communities, in a variety of contexts. Some of the guiding principles arise from the notions of Indigenous ways of learning and knowing, supporting Indigenous learning in a wholistic perspective, Indigenous community learning, using synchronous technologies in Indigenous communities, and potential barriers. Although there are reports and hypothesized case studies surrounding the use of synchronous technologies in Indigenous communities, a gap in research evidence has been identified in how self-identified literacy needs can be supported by online synchronous learning technologies. From this identified gap the research questions were developed.

An important aspect of the design-based research framework is the capacity to incorporate the expertise of practitioners who work in the identified field. The expertise and experience of these practitioners add to the richness and authenticity of the data and the practical design outcomes. In the first stage of phase 1 we identified literacy practitioners who work in the area of Indigenous adult literacy. The practitioners were recruited over three months in one of four ways; through a workshop presented by the first author as an online interest session for the Australian Council for Adult Literacy (ACAL); at the ACAL annual general conference in Gold Coast; and the community support group in the community where the research took place. The practitioners were of varying ages and experience but all had worked with Indigenous communities, community members and/or with Indigenous literacy issues, in either a face-to-face or computer-based capacity. In total, ten literacy practitioners participated in the online focus group using an online live-time synchronous platform. The practitioners represented nearly all of the states and territories in Australia (QLD, VIC, SA, TAS, WA, and NT) and a variety of roles in the literacy field for example, a registered training organization’s literacy practitioner, a TAFE program coordinator, an art literacy specialist and an army captain in charge of Indigenous recruitment education.

Phase 2

Development of a theoretical framework and a research design informed by existing design principles and technological innovations

In phase Two, a process was established for engaging with a remote Indigenous community in South Australia. The community was found through a partnership that was already in place between communities and the working team of the Digital Bridge Unit (DBU), part of the Information Economy Directorate in the Department of Further Education, Employment, Science and Technology of the South Australian Government. The DBU has a primary focus on the use of technology for disadvantaged groups; including but not exclusive to Aboriginal
communities. This technology is in the form of a free online virtual classroom environment and is made available to adults in remote areas. The DBU also has a relationship with TAFE SA to provide the online platform on which accredited training modules can be delivered to these learners as well as providing technical support to the broader learning community. The manager of the DBU first approached the communities in question, raising awareness of the project. The DBU manager inquired if any of the communities would be interested in participating in a research project about learning at a distance and working with a researcher on a project to show best practices in supporting Indigenous learners. Three of the communities came forward as interested parties. The first author visited each of the three communities to define their interests and needs, to discuss with the communities the depth of the research and the commitment required on behalf of the community. This introduction promoted a partnership-based approach where community council members discussed issues that their community members faced, as well as discussed the benefits of involvement in the research to both their community and other Aboriginal communities as a result. Each of the communities showed different literacy needs and varied levels of interest in being involved in the research. From the information gathered and responses from the initial visits, the first author approached one of the communities to ask for their participation.

A volunteer community focus group of up to 10 members in the collaborative community engagement process was formed. This group was recruited after permission was granted from the community council for the researcher to be in the community. The researcher was introduced to many community members through a respected Elder and signs were also posted around the community to advertise the focus group meeting. This effort resulted in a group that worked together to identify the literacy needs in their community and create a solution to help solve some of those needs. This collaborative solution was built from the compilation of common themes in the literature, the data collected from literacy practitioners, the self-identified literacy needs from within the community and created together with the community focus group.

Another important aspect of phase two was the theoretical framework, the foundation on which the research is built. The framework for this study utilizes a combination of theories, which relate to Indigenous adults, distance learning and technology. These include: Vygotsky’s socio cultural theory (van der Veer & Valsiner, 1991), Lave and Wenger’s situated learning theory (Lave & Wenger, 1991), and Henderson’s multiple cultural model for interactive multimedia (Henderson, 1996). Figure 2 below shows the circular interdependence of each theory. The combining, interweaving and reflecting on these theories throughout the entire research project supports the approach taken towards the study and provides the foundation on which the proposed collaborative community solution is based (Herrington, McKenny, Reeves, & Oliver, 2007).

![Fig. 2 Pictorial representation of theoretical framework](image)

Fig. 2 Pictorial representation of theoretical framework
Future Developments for Phase 3 and Phase 4

Phase 3  
Testing and refinement of a solution to the literacy gap using synchronous technology

Phase 3 of the research will continue in the community where phase 2 took place. There will be two cycles of the collaborative community solution to address the literacy needs of the community. The first cycle will include the first implementation of the online literacy activity with audio recordings and field notes being taken throughout. At the end of the first activity, a meeting will take place with participants in both the development and participation of the first cycle in order for the group to identify successes and improvements to be made. The data collected over the time period of the first activity will then be analyzed and common themes identified. A meeting with the focus group to discuss the common themes and suggested changes to the initial activity will then take place, with the intent of the suggested changes to be implemented for the second cycle of phase 3. The newly revised activity would then be delivered again, with audio recordings and field notes taken.

Phase 4  
Reflection and identification of design principles for implementing synchronous literacy experiences for Indigenous adult learners

The fourth and final stage of the research reflects on the analysis of the data and establishes connections between the activity in phase 3 and the literature review and practitioner data collected in phase 1. This analysis will help to identify the design principles for implementing synchronous literacy experiences for Indigenous learners. These principles will provide practical and relevant guidelines based on the expertise and experience of literacy practitioners and community members. The repetitive cycles of testing and refinement of solutions in phase 3 will ensure a level of confidence in the results which when connected to the compiled information in phase 4, will impact future synchronous literacy learning research.

Conclusion

This paper presents the first steps in research into the use of synchronous learning technologies to address the low level literacy and employment skills of Indigenous learners in Australia. Previous research and experience suggests that synchronous learning tools have the potential to incorporate culture and various learner styles in an environment conducive to the principles of Indigenous peoples, with literacy practitioners being able to use synchronous learning methods to address the needs of isolated learners. However, there is little existing research that reflects the definitions of literacy adopted by the Indigenous community and the effectiveness of synchronous learning opportunities for Indigenous learners.

We have chosen a design-based research approach because it lends itself to incorporating practitioners’ input and can respond to a community’s self-identified needs. A design-based research approach also allows for iterative cycles of testing and refinement of a solution and is often incorporated when research involves technological innovations and solutions to identified needs. The data collected in phase one has resulted in guiding principles around Indigenous ways of learning and knowing, supporting Indigenous learning in a wholistic perspective, Indigenous community learning and using technologies in Indigenous communities. In the second phase of the research a theoretical framework has been identified. This framework will inform the way that this study is reviewed, analyzed and discussed. Also in this phase a voluntary collaborative community focus group was brought together to confirm community literacy needs and to provide a solution to the needs identified.

Design-based research also incorporates the iterative cycles of testing and refinement of the solutions put into practice (Reeves, 2006). In phase three of this research, the iterations of the proposed collaborative community solution will take place that involves a collaborative refinement process. Finally, in phase four, a reflection of the literature review, practitioner’s input, data collected, and iterative cycles of the proposed solution will result in the design principles and enhanced recommendations for literacy practitioners to reflect on when providing synchronous literacy learning opportunities to Indigenous learners at a distance.
References


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