2008

Using design-based research to produce strategies for synchronous literacy for Indigenous learners

Michelle J. Eady

University of Wollongong, meady@uow.edu.au

Recommended Citation

Eady, Michelle J., "Using design-based research to produce strategies for synchronous literacy for Indigenous learners" (2008). *Emerging Technologies Conference 2008*. 7.
https://ro.uow.edu.au/etc08/7

Using design-based research to produce strategies for synchronous literacy for Indigenous learners

Abstract

Synchronous learning is emerging as an effective way 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 learning technologies in general, there is very little research completed in the area of synchronous learning opportunities for remote Indigenous learners. This paper demonstrates how a design-based research approach coupled with the unique needs of Indigenous learners has the potential to result in the production of effective design principles that take into consideration an online learning community and delivering literacy services for remote Indigenous learners

Publication Details

emerging technologies
C O N F E R E N C E

S u p p o r t i n g a L e a r n i n g C o m m u n i t y

Using design-based research to produce strategies for synchronous literacy learning for indigenous learners

Michelle Eady
University of Wollongong

Abstract:

Synchronous learning is emerging as an effective way 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 learning technologies in general, there is very little research completed in the area of synchronous learning opportunities for remote Indigenous learners. This paper demonstrates how a design-based research approach coupled with the unique needs of Indigenous learners has the potential to result in the production of effective design principles that take into consideration an online learning community and delivering literacy services for remote Indigenous learners

Introduction

According to the 2006 Canadian census, 35 % of Indigenous adults aged 25-64 years were unemployed; nearly twice the overall unemployment rate for all of Canada (Statistics Canada, 2008). Additionally, 38% of adults self-reporting as Indigenous did not have their high school diploma, compared to 15% of the non-Indigenous population (NILA, 2006; Statistics Canada, 2008). There is also a noted difference with Indigenous adults living on reserves, having an unemployment rate of nearly 50% and approximately 52% not having completed a high school education (Statistics Canada, 2008). The statistics for Australian Indigenous learners has not been as thoroughly or extensively completed, however the Australian Bureau of Statistics document entitled, "Aspects of Literacy: Assessed Skill Levels Australia, 1996" reports approximately 44% of Indigenous Australians have low literacy levels in Standard Australian English, compared with 19% of non-Indigenous Australians. When this study was revised in 2006, the Indigenous population was not addressed in isolation from the rest of the statistics in the report.

The above statistics, both Canadian and Australian, indicate a substantial gap in literacy and basic skills, not only between the Indigenous and non-Indigenous population, but also between Indigenous adults living on and off reserve. There are several theories linked to this. One is the increase of the working population among Indigenous people, thus resulting in more people with fewer employment opportunities (Miller, 2006). Another speculation has been connected to the lack of employment and training opportunities in Indigenous communities (Eady, 2004; Greenall, 2005; Miller, 2006). These differences in literacy skill levels have prompted practitioners, agencies and government officials alike to address and act on the issue of literacy skills. A number of these individuals have been attracted to the potential of synchronous learning to address the issues of low literacy levels and unemployment among Indigenous people, more specifically living in remote communities.

Synchronous Delivery and the Indigenous Learner

There are reports written that suggest instructors working with Indigenous learners have found the synchronous learning platform to be successful in teaching employment-related skills, with the benefit of learners increasing computer skills while acquiring literacy outcomes (Greenall, 2005; Johnston et al, 2003; 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). However, the research itself must be conducted and in such a way to ensure those with experience working with these communities and learners are considered, and an opportunity for cyclical trials and retrials is given with an end result of the researched principles that need consideration when providing synchronous learning opportunities for Indigenous people.

The Research Questions:

Research question 1

1.   What does literacy mean for a remote Indigenous community?

1.1   What is the community's definition of the need?

1.2   What literacy and technology practices are already in place?

1.3   What types of support systems are available to the community?

In Canada, there are well respected and recognized Indigenous Elders/teachers who 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, n.d., p.6).

Each Indigenous community has unique cultures, language dialects, traditions, stories and people and although the suggested definitions provide a starting point for realizing the depth and scope of Indigenous literacy, one must go to the source, to the community itself, to find what literacy means for that community and the

DEFINITION

Indigenous: *"There is no universal and unambiguous definition of the concept of 'indigenous peoples', since no single accepted definition captures the diversity of indigenous cultures, histories and current circumstances" (UNESCO, 2004, p.10). Through its work in supporting the rights and status of Indigenous populations on a global level, the United Nations has established the following as a working definition of Indigenous peoples:*

"Those which, having a historical continuity with pre-invasion and precolonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them. They form at present non dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems" (Cobo, 1987).

residents of it and the literacy needs identified by the community members.

Research question 2

2. How can self identified literacy needs for a remote Indigenous community be supported by online synchronous learning technologies?

Synchronous learning has the capability to incorporate many learning styles within its delivery (Greenall & Loizides, 2001). When working with Indigenous learners in particular, practitioners must consider the various ways in which Indigenous people have processed information throughout history (Antone et al, 2002; George, n.d.).

Considering this, we include the research on Indigenous culture, which indicates that knowledge is 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 use of audio and visual elements could assist to address language barriers, having the potential of including Indigenous language instruction for those who are live in remote communities (AISR, 2006; Daniels, 2003; Sawyer, 2004). But can synchronous learning support the community's definition of literacy and the particular need of that community? How can we ensure that a synchronous tool is a viable solution to fill the identified need for literacy support?

There is a unique opportunity with a sector of the South Australian Government called the Digital Bridge Unit (DBU). The DBU has worked extensively with Aboriginal communities in far western areas of South Australia also known as the Wangka Wilurrara region. The DBU is also in discussion with an Australian Government funded project of the University of South Australia, to establish social networking functions on-line and hence develop digital literacy and encourage increased on-line activity for people in these communities. This program is at a crucial development stage in which the aforementioned research questions could be addressed and researched reflections made for similar digital literacy programs in the future.
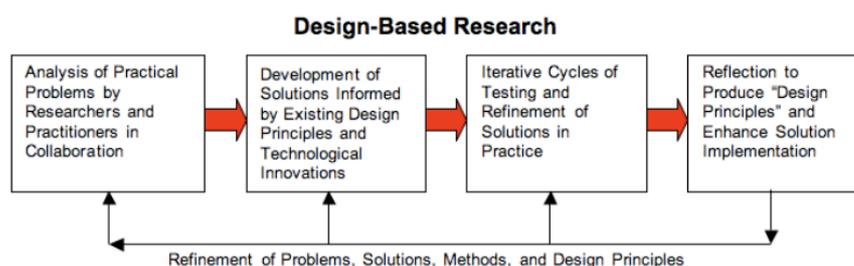
Using a Design-based research approach

The research questions will be addressed through a qualitative study, using a design-based research approach (Figure 1). 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 et al, 2007).

DEFINITION

Synchronous: *Includes a learning platform where learners and instructors are participating simultaneously in an online learning community in "real time". For the purpose of this study the synchronous platform CENTRA© will be used.*

Figure 1. Design-based research approach (Reeves, 2006)

A designed-based research approach is ideal for this study as it 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.

Phase 1

Analyse the Synchronous Literacy Gap in Remote Indigenous Communities through Research and in Collaboration with Practitioners in the Field

In the first phase of the research, common themes in the literature will be identified. The topics to be reviewed will include Online and Synchronous Learning, Literacy and Basic Skills, Indigenous Peoples and Communities, in a variety of contexts. The common themes identified will help to create the principles on which possible solutions are built.

Phase 2

Development of Framework and Design Informed by Existing Design Principles and Technological Innovations

The second phase of the research involves identifying the framework and perspectives that will form the way in which the study will be reviewed, analysed and discussed.

Figure 2: Theoretical framework
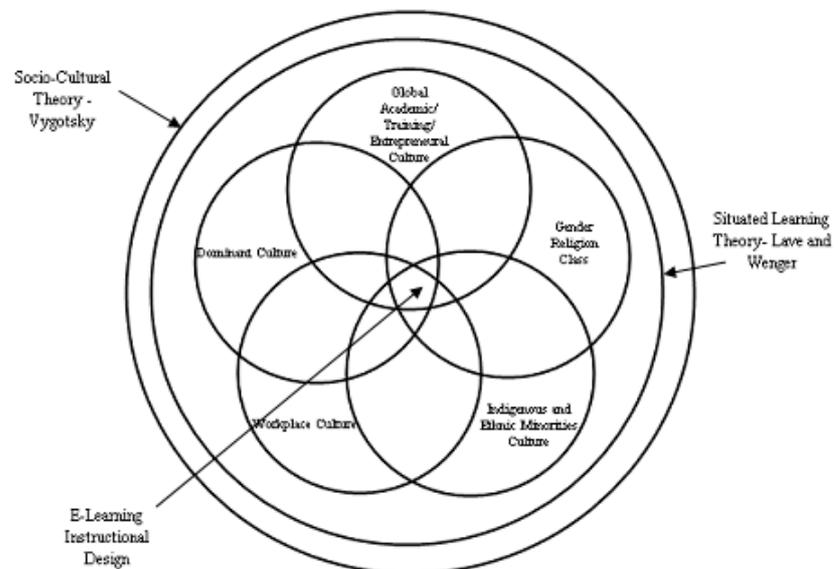
While this research follows the designed-based research approach it will also incorporate a case study approach from an emic perspective. A case study is the analysis of a single social unit; in this case a community, and is an effective design to enlighten and thus promote change, and even improvement in practice (Merriam, 1998). An emic perspective for this case study encourages the researcher to validate the implementation of a solution from the interpretation of what the participants value from within their culture (Pike, 1967). The description of the proposed collaboration as outlined below in phase three with the formulated questions attached will accompany the described methodology. The theoretical framework on which this research will be based will combine Vygotsky's socio cultural theory,

Lave and Wenger's situated learning theory and Henderson's multicultural theory of learning. The three are represented pictorially in Figure 2.

At this stage, the proposal will be submitted to seek faculty advice and the ethics proposal will also be submitted. Once approved, the research will take a step back towards phase 1. For the purpose of this study the design based research is ideal as it takes into account the practitioners' experiences and successes and combines them with the researched literature for a widespread, detailed and relevant analysis of the research questions.

The design is now confirmed, taking into account the emerging themes from the data collection with the literacy practitioners, community members and the literature.

Phase 3

Testing and Refinement of Solution to Literacy Gap Using Synchronous Technology

Phase 3 of the research will begin with a group interview in the community where the research is taking place. This exploratory focus group interview with community members and literacy facilitators will seek to discuss the definition of literacy for that community and the literacy needs to be addressed within the chosen community. Information about synchronous learning and the ways that the literacy needs of the community could be met through synchronous learning are explored throughout the facilitated discussions. An intervention process would then be established to include the focus group members in the development of the intervention phase. In collaboration with the focus group this intervention would be built from the compilation of common themes in the literature, the data collected from literacy practitioners and the definition of and need for literacy strengthening opportunities identified within the community and created in collaboration with the community.

There will be two cycles of intervention to address the literacy needs of the community. The first cycle will include the first implementation of the online literacy intervention with audio recordings and field notes being taken throughout.

At the end of the first intervention, a meeting will take place with those involved 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 intervention will then be analysed and common positive and negative themes identified. A meeting with the focus group to discuss the common themes and suggested changes to the initial intervention would then take place, with the intent of the suggested changes to be implemented for the second cycle of phase 3. The newly revised intervention would then be delivered again, with audio recordings and field notes taken.

After the second cycle, the exploratory focus group will meet a final time to discuss the success of the modifications of the first intervention. Questions about the future of using synchronous tools for literacy learning needs will be asked to determine the validity of using such a tool to meet those needs in that community.

Phase 4

Reflection and Identification of Guiding Principles for Designing and Implementing Synchronous Literacy Experiences for Remote Indigenous Learners

The fourth and final stage of the research reflects on the analysis of the data and establishing connections between the interventions in phase 3 and the literature review and practitioner data collected in phase 1. This analysis will help to identify the guiding principles for designing and implementing synchronous literacy experiences for remote Indigenous learners. These guiding principles will provide an evidenced based research approach that provides practical and relevant design principles, while considering the expertise and experience of distance literacy practitioners. The repetitive cycles of testing and refinement of solutions in phase 3 ensures thoroughly trialed results which when connected to the compiled information in phase 4, will impact future synchronous literacy learning research.

Conclusion

This paper has overviewed some of the statistics of the low level literacy levels for both Canadian and Australian remote Indigenous learners and the suggested viable use of synchronous learning technologies to address the low leveled literacy and employment skills of Indigenous learners. It has been suggested 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 learners who are currently isolated from face to face literacy learning opportunities. However, there is currently a limited amount of research completed that reflects the definitions of literacy for the Indigenous community and the effectiveness of synchronous learning opportunities for Indigenous learners.

A designed-based research approach proves to be the methodology that can best take into account the practitioners' input in combination with the analysis of literature to identify the gaps in the research reflecting on Indigenous literacy and synchronous technologies. Design-based research also incorporates the iterative cycles of testing and refinement of the solutions put into practice (Reeves, 2006) to ensure a through analysis which results in the design principle and enhancement recommendations that literacy practitioners need to best reach the remote Indigenous literacy learner.

References

Antone, E., Gamlin, P., Sinclair, M., Turchetti, L., Robbins, J., & Paulsen, R. (2002). *What is Indigenous Literacy?* Retrieved March 01, 2008 from http://www.oise.utoronto.ca/CASAE/cnf2002/2002_Papers/sym-antone&etal2002w.pdf

Australian Bureau of Statistics (ABS) (1996). *Aspects of literacy: Assessed skill levels, Australia*. Canberra: ABS.

Australian Institute for Social Research (AISR) (2006). *The Digital Divide –Barriers to e-learning.* Retrieved March 10, 2008 from:

http://www.ala.asn.au/research/Barriers%20-%20by%20Digital%20 Bridge%20Unit% 20and%20undertaken%20by%20Australian% 20Institute%20of%20Social%20Research.pdf

Battiste, M. (2005). *State of Indigenous Learning: Background Paper for the "NationalDialogue on Indigenous Learning".* Ottawa, ON: Canadian Council on Learning.

Cobo, J. Martinez (1986). The Study of the Problem of Discrimination Against Indigenous Populations (Conclusions). New York: United Nations.

Daniels, D. (2003). *Canada's northern Indigenous perspectives on distance learning.* Retrieved March 8, 2008, from http://vefir.unak.is/ICTConference/Daniels.pdf

Eady, M. (2004). *Building a Solid Framework: Online Mentoring for Adult Literacy Learners in Northwestern Ontario – An Action Research Study and Recommendations for Implementation.* Thunder Bay, ON: Lakehead University.

Eagles, D., Woodward, P., & Pope, M. (2005). *Indigenous learners in the digital age: Recognising skills and knowledge. Retrieved March 11, 2008 from* http://\\Wdestr\Welldone\Event_Activities\AVETRA 2005\PAPERS\Final Papers Post refereeing\PA 045 Eagles.doc

George, P. (n.d.). Indigenous Literacy in Ontario. Retrieved March 22, 2008 from: http://www.chiefs-of-ontario.org/ education/ manifesto/ First%20Nations% 20Literacy%20in%20Ontario.doc

George, P. (n.d.) *Vision: Guiding Indigenous Literacy.* Owen Sound, ON: Ningwakwe Learning Press.

Greenall, D. (2005). *Formative Evaluation of the Sunchild E-Learning Community.* Ottawa, ON: The Conference Board of Canada.

Greenall, D. and Loizides, S. (2001). *Indigenous Digital Opportunities: Addressing Indigenous Learning Needs Through the Use of Learning Technologies.* Ottawa, ON: The Conference Board of Canada.

Henderson, L. (1996). Instructional design of interactive multimedia: A cultural critique. *ETR&D,* 44(4), 85-104.

Herrington, J., McKenney, S. Reeves, T.C., & Oliver, R. (2007). *Design-based research and doctoral students: Guidelines for preparing a dissertation proposal.* Proceedings of EdMedia, 2007 [in press].

Johnston, J. Petty, L. Shafer D. (2004) *Handbook of Distance Education for Online Learners, 3rd Edition.* Institute for Social Research, University of Michigan. Retrieved February 24, 2008 from: http://www.projectideal.org/publications_resources/handbook.html.

Lave, J. & Wenger, E. (2003). *Communities of Practice.* Retrieved April 4, 2008 from: http://www.infed.org/biblio/communities_of_practice.htm

Merriam, S.B. (1998). *Qualitative Research and Case Study Applications in Education, 2nd Ed.* San Francisco, CA: Jossey-Bass.

Miller, A. (2006). Education Everywhere Through the Indigenous Distance Learning Initiative. *Summit: Canada's Magazine on Public Sector Purchasing.* January/February 2006, 18-19. Retrieved March 4, 2008 from: http://www.cisco.com/web/CA/pdf/education_everywhere.pdf

National Indigenous Literacy Association (NILA) (2006). *Highest level of educational attainment of people aged 25 to 64, by Indigenous identity and sex, Canada, Provinces and Territories, 2006.* Retrieved March 22, 2008 from: http://www.nila.ca/shared/10/files/2006_Education_Release_Indigenous_data_fro m Provinces_and_Territories.xls

O'Lawrence, H. (2006). The influences of distance learning on adult learners. *Techniques (Association for Career and Technical Education), 81*(5), 47-49. Retrieved March 6, 2008, from ERIC database.

Pike, K.L. (1967). *Language in Relation to a Unified Theory of the Structure of Human Behaviour.* The Hague: Mouton.

Porter, P. and Sturm, M. (2006). *Crossing the Great Divides: Distance Learning and Flexible Learning in Adult Basic Education.* Toronto, ON: Centre AlphaPlus Centre.

Reeves, T.C. (2006). Design research from a technology perspective. In J. van den Akker, K. Gravemeijer, S. McKenney & N. Nieveen (Eds.), *Educational design research*, p. 52-66. London: Routledge.

Sawyer, Graeme (2004). *Closing the Digital Divide: Increasing education and training opportunities for Indigenous students in remote areas. Retrieved March 9, 2008 from:* http://pre2005.flexiblelearning.net.au/projects/media/digitaldivideprojectreport.pd f

Scherba de Valenzuela, J. (n.d.). *Sociocultural Theory.* Retrieved April 23, 2008 from: http://www.unm.edu/devalnez/handouts/sociocult.html

Statistics Canada (2008). *Indigenous identity population by age groups, median age and sex, 2006 counts, for Canada, provinces and territories - 20% sample data.* Retrieved March 21, 2008 from: http://www12.statcan.ca/english/census06/data/highlights/Indigenous/pages/Page. cfm?Lang=E&Geo=PR&Code=01&Table=1&Data=Count&Sex=1&Age=1&Star tRec=1&Sort=2&Display=Page

Statistics Canada (2008). *Labour force characteristics, Ontario, February 2008.* Retrieved March 9, 2008 from: http://www.40.statcan.ca/l01/cst01/lfss01b.htm
Statistics Canada (2008). *Canada's Changing Labour Force, 2006 Census: Findings.* Retrieved March 25, 2008 from: http://www12.statcan.ca/english/census06/analysis/labour/index.cfm
United Nations Educational, Scientific and Cultural Organization (UNESCO), (2004). *UNESCO and Indigenous Peoples: Partnership to Promote Cultural Diversity.* New York: United Nations.