Post-Secondary Distance Education for First Nations, Métis and Inuit Learners Living in Remote and Rural Communities: An Annotated Bibliography

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This annotated bibliography is based on a comprehensive literature review conducted by the VideoCom project, the National Research Council Institute for Information Technology (NRC-IIT) and the Canada Institute for Scientific and Technical Information (NRC-CISTI). The partners on the VideoCom project are the NRC-IIT in New Brunswick, Keewaytinook Okimakanak in Ontario, Mik'maw Kina'matneway / Atlantic Canada's First Nation Help Desk in Nova Scotia, the First Nations Education Council in Quebec, and the University of New Brunswick.

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CONTACT INFORMATION

The VideoCom project: http://videocom.firstnation.ca

Dr. Susan O'Donnell
Senior Research Officer
People-Centred Technologies Group
National Research Council
Institute for Information Technology
46 Dineen Drive
Fredericton, NB
Canada E3B 9W4
Email: susan.odonnell@nrc.ca
Tel: 1-506-444-0374

Introduction

Information and communication technologies (ICT) for distance education at post-secondary level is currently a "hot topic" for educators wanting to understand how to best to deliver courses and engage students living in remote and rural First Nations, Métis and Inuit communities. This report was prepared to assist educators and people involved in education and learning in First Nations, Métis and Inuit communities. It is, to our knowledge, the most comprehensive annotated bibliography available on this topic.

The bibliographic search focused on literature that discusses 1) best practices employed in post-secondary distance education in First Nations, Métis and Inuit communities, 2) funding for post-secondary distance education, and 3) policy issues related to ICT in the First Nations and Inuit contexts. This bibliography includes both peer-reviewed publications and grey literature.

The search for peer-reviewed publications was performed by NRC-CISTI, Canada's primary institute for scientific and technical information. Databases searched include: Bibliography of Native North Americans, Cinhal, Communication & Mass Media Complete, ERIC, Pubmed, Scopus/WOS, Sociological Abstracts. The databases were searched using a combination of subject terms and keywords, including those related to population (for example, 'Aboriginal', 'First Nations', 'Native', 'Indigenous', 'remote and rural'), computer-based technologies, distance education and best practices, in Canada and internationally.

The authors conducted a grey literature search. Grey literature refers to documents that are not produced through commercial publishing. Grey literature was identified by the authors and the collaborators through works known to them and web searches of Aboriginal organizations, government agencies, and other organizations.

Overall, we found several case studies of best-practices for distance education in remote and rural First Nations, Métis, and Inuit communities. However there were very few publications concerned with funding for First Nations, Métis, and Inuit learners enrolled in post-secondary distance education. Most of the work specifically addressing funding for ICT in education was written in the 1990s and early 2000s. Recent publications tend either to address the general lack of funding support for First Nations, Métis, and Inuit learners or they address the lack of funding for ICT in remote First Nations' communities. In the first instance (publications that deal with the lack of funding for education, especially post-secondary) technology funding usually garners a sentence or two as one of the areas in education that receives no direct support from Indian and Northern Affairs (INAC). In the second instance (publications dealing with the lack of funding for ICT support in remote communities) education often receives a brief mention. It seems at this point, then, that there are three conversations going on with little back and forth between them.

That stated there are three articles (included in the annotated bibliography) that would serve as excellent starting points for research into post-secondary distance education in remote and rural First Nations communities. The first is the First Nations Education Council's (FNEC), "Paper on First Nations Education Funding," a thorough analysis of funding structures for First Nations education in Canada. The second important document is the Assembly of First Nation's (AFN), "Taking Action for First Nations Post-Secondary Education: Access, Opportunity, and Outcomes." Again this report offers a thorough analysis of INAC's chronic underfunding of First Nation's education. The final paper is Marian Bredin's "Bridging Canada's Digital Divide: First Nation's Access to New Information Technologies" (2001). This paper also queries access to ICT and issues of ownership in regards to, among other things, First Nations control of education at all levels.

Annotated Bibliography

Ally, M., (ed). (2009). *Mobile learning: Transforming the delivery of education and training*. Edmonton, Alberta: Athabasca University Press. This book covers how to design learning materials for delivery on mobile technology and become familiar with the best practices of other educators, trainers, and researchers in the field, as well as the most recent initiatives in mobile learning research. Businesses and governments can learn how to deliver timely information to staff using mobile devices. Professors can use this book as a textbook for courses on distance education, mobile learning, and educational technology.

Ambler, M. (1999). Educating the Native student at a distance. *Tribal College Journal*, Spring(3), 6-9. This introduction to a special issue of the Tribal College Journal, on distance education, discusses the benefits and drawbacks of using distance education in the native education context. Advantages include in-service training and continuing education without traveling for community members. Tribal colleges can reach out to their urban tribal members with language and government courses, making them feel part of the communities. Distance education courses build bridges between Indian and non-Indian students who learn together, hundreds of miles apart. Tribal college cultural scholars could offer courses to mainstream universities with much more credibility than the Native American studies courses some universities now hire non-Indians to teach. Disadvantages include the possibility that distance education would attract thousands of new non-Indian students, taking funding away from existing Native colleges. Several tribal colleges have already expressed their reluctance to share culturally sensitive material with non-Indians or members of other tribes. In addition to cultural privacy concerns, they must also be concerned about their intellectual property rights, which are still being defined in the new media. For example, a mainstream university could pirate their course materials after using them one year without compensation. Using technology can be very expensive, especially in the rural areas where most tribal colleges are located. Colleges must invest in computers, technicians, training, access lines and/or satellite time. The best technology can fail, and early efforts at distance education have suffered from technology problems.

Archibald, J., Hampton, E., & Newton, E. (1995). *Organization of educational services in sparsely populated regions of Canada*. Saskatoon, SK: Saskatchewan Indian Federated College. This report identifies and examines current approaches to the provision of second- and third-level services in provincial school systems serving remote areas of Canada, and assesses the applicability of these approaches for First Nations schools. Third-level services are offered by the provincial ministry and include curriculum development, research, evaluation, policy development, and general goals or standards for education. A literature review examines advantages and disadvantages of small school-community contexts, the central question of equity regarding rural student access to a variety of programs and educational benefits, and trends in administrative organization toward cooperation and sharing. Eleven case studies describe and analyze educational innovations in sparsely populated areas of Canada and the United States. In all cases, the emphasis was on decentralization, collaboration, and local control. However, collaborative processes are slower than hierarchical ones; implementation of cooperative arrangements was usually slow and sometimes painful. The last section of the report addresses implications for Aboriginal use of provincial educational services. The goal of self-determination must guide decisions about how services, practices, and policies from non-Native education institutions are screened and adapted to First Nations schools.

Assembly of First Nations. (2010). *Taking action for First Nations post-secondary education: Access, opportunity, and outcomes. Discussion paper*. Ottawa, Canada: Assembly of First Nations. http://www.afn.ca/cmslib/general/mfnps.pdf This discussion paper reminds the government of its treaty promises to provide accessibility to education - including post-secondary education (PSE) - for all First Nations learners. This paper proposes seven steps to ensure that the Canadian Government meet its treaty obligations to support education: "Accessibility, Accountability, Data Collection and Reporting, Recognizing and Ensuring Student Success, Program Effectiveness, Support for First Nations Institutions and the Leveraging of Other Resources" (5). Not only is the Canadian Government obligated under treaty to provide fiduciary support, but because First Nations are the fastest growing population, this support will have long-term benefits by preparing First Nations for the workforce. The paper then notes eight examples of promising practices, by which First Nations organizations have met the needs of their students, despite increased funding cutbacks for PSE by the Canadian Government. Although this paper does not deal substantially with the need for ICT, it recommends that any strategic approach to maximize PSE funding for First Nations must provide adequate capital and construction which includes operations and maintenance and technology acquisition.

Benham, M. K. P., & Stein, W. J. (2003). *The renaissance of American Indian higher education: capturing the dream*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc. The Native American Higher Education Initiative (NAHEI), a W.W. Kellogg Foundation project, has supported the development and growth of centers of excellence at Tribal Colleges and Universities across the United States. These are centers of new thinking about learning and teaching, modeling alternative forms of educational leadership, and constructing new systems of post-secondary learning at Tribal Colleges and Universities. This book translates the knowledge gained through the NAHEI programs into a form that can be adapted by a broad audience, including practitioners in pre-K through post-secondary education, educational administrators, educational policymakers, scholars, and philanthropic foundations, to improve the learning and life experience of native (and non-native) learners.

Bredin, M. (2001). Bridging Canada's digital divide: First Nation's access to new information technologies. *The Canadian Journal of Native Studies*, 21(2), 191-215. Bredin notes that digital networks were created for profitable urban markets. As such these technologies have not been fully extended to First Nations communities. When these technologies are extended to remote First Nations communities, they often present information that is irrelevant. Bredin identifies the exchange of information through digital networks as part of a larger system of informational capitalism. These new technologies facilitate centralized control of decision making processes at the same time they contribute to the decentralization of work. The digital divide (a gap between those who can make effective use of information technology and those who cannot) and a knowledge gap is created by this system of informational capitalism where cultural production is also centralized and increasingly controlled by the private sector. As a result those groups with the least purchasing power also have the least opportunity to access the technology and to access relevant political and cultural information, if indeed the information can even be found. For Bredin, the digital divide and knowledge gap are linked to earlier forms of colonization that saw remote communities cut-off from control of necessities such as education and healthcare. Bredin argues that in order to bridge the digital divide and narrow the knowledge gap First Nations communities must not only have acces to information technologies, but control of those technologies in order to produce and disseminate culturally relevant information for the sake of political activism and cultural

survival. She looks at K-NET in northern Ontario as an example of the multiple uses to which remote First Nations put information technologies. The key is First Nations control of these technologies.

Carter, L., & Rukholm, E. (2009). Partnering with an aboriginal community for health and education. *Canadian Journal of University Continuing Education*, 35(1), 45-60. Cultural awareness is a concept that is gaining much attention in health and education settings across North America. This article describes how the concepts of cultural awareness shaped the process and the curriculum of an online health education project called Interprofessional Collaboration: Culturally-informed Aboriginal Health Care. The exploration focuses on the interactions among faculty members and educational developers from Laurentian University, Elders of the Anishinabek tradition, and members of the Anishinabek community known as the North Shore, an area approximately two hours northwest of Sudbury. The project's curriculum is driven by choices made by the Anishinabek Elders, with support from their cultural community and the local university. The online module developed for this project provides health-care students at Laurentian University, with access to traditional knowledge, including the teachings of the Medicine Wheel and the Seven Grandfathers. Ideally, these teachings will lead to an increase in culturally informed care for Anishinabek clients and their families in northern Ontario. The process used by the university-based team with the Elders and the larger community of the North Shore is recommended as a possible template for university-based teams working with Aboriginal partners. Finally, the Anishinabeks of the North Shore are recognized as a cultural exemplar of a community that appreciates the intersection and potential of traditional knowledge and contemporary health education practices and technologies.

Davis, L. (2000). Electronic highways, electronic classrooms: Distance education in Canada. In M. Brant Castellano, L. Davis, & L. Lahache (Eds.), *Aboriginal Education: Fulfilling the Promise* (pp. 224-250). Vancouver, BC: UBC Press. The author assesses distance education in Aboriginal communities in Canada and highlights future research in this area. Highlights that may guide future research include: being clear on what distance education means; Aboriginal control over the content and delivery of courses in their communities through distance education; and delivery modes with higher level of interactivity (such as two-way audio and TV-conferencing) which supports learning. Aboriginal communities need to define their own educational priorities and to determine the values and perspectives that are informed by their educational experiences.

Deer, K., & Hakansson, A. (2005). An indigenous approach to bridging the digital divide project proposal. *Education and the Knowledge Society*, 161, 237-40. Knowledge, information and communication are at the core of the emerging global Information Society. Knowledge, information and communication, however, are culturally defined concepts and expressions. Also, ICT are cultural products of the society that has developed them. Indigenous Peoples have their own concepts of knowledge, information and communication and have developed their own forms of information communication. Therefore Indigenous Peoples need to take part in the Information Society on their own terms and on the basis of their cultural backgrounds, to be able to shape their future without risking to lose their cultures and identities. This project aims to contribute to this process by addressing four major aspects: identification and development of culturally appropriate ICT applications; elaboration of Indigenous approaches and strategies to bridge the digital divide; design of culturally appropriate capacity-building tools; elaboration of culturally appropriate development strategies for utilization of ICT for poverty reduction.

Downing, R. (2002). Bridging Aboriginal digital and learning divides: Report on office of learning technologies support to Aboriginal communities. (HRSDC, Office of Learning Technologies Report), Ottawa. This report outlines the findings of a survey of projects funded by the Office of Learning Technologies involving Aboriginal communities. This report assesses the results of the OLT programs in supporting the learning needs and challenges in Aboriginal communities and provides recommendations on how that support can be strengthened. Recommendations made for future programs include funding priorities for Aboriginal projects such as economic development, digital and learning projects in Aboriginal communities, adequate funds for training in information and communication technologies and capital purchases of equipment; inclusion of Aboriginal organizations, partners or beneficiaries of OLT projects including how to strengthen Aboriginal community and adult learning initiatives and peer learning between them; and a review and assessment of community networking technologies should be completed and provided to Aboriginal organizations and other community stakeholders.

Dumbrill, G. C., & Green, J. R. (2007). Including indigenous knowledge in web-based learning. *Journal of Technology in Human Services,* 25(1-2), 103-117. This article explores differences between Indigenous knowledge and Western/European ways of knowing, and considers the pedagogical implications for Web-based learning. Moving beyond a simple examination of the nature of Indigenous knowledge, this paper explores ways that "education" has been used by colonizers to subjugate Aboriginal peoples. Outlining ways to avoid colonization, this paper contends that rather than simply being sensitive to the nature of Indigenous knowledge when designing Web-based education, instructors need to be sensitive to ways Western/European knowledge subjugates other forms of knowledge by situating itself as "the" way of knowing rather than "a" way of knowing.

Duquette, C. (2000). Becoming a teacher: Experiences of First Nations student teachers in isolated communities. *Canadian Journal of Native Education*, 24(2), 134-143. Research examined the experiences of 14 student teachers living in isolated areas who completed the University of Ottawa's 2-year community-based Native teacher education program. Factors contributing to successful completion included a personal support network, program elements that fostered a sense of social and institutional integration, and personal characteristics such as goal orientation and persistence.

Dyson, L., Hendriks, M., & Grant, S. et al. (2007). *Information technology and Indigenous People*. Hershey, PA: Information Science Publishing. Information Technology and Indigenous People provides theoretical and empirical information related to the planning and execution of IT projects aimed at serving indigenous people. It explores many cultural concerns with IT implementation, including language issues and questions of cultural appropriateness, and brings together cutting-edge research from both indigenous and non-indigenous scholars.

Epstein, R. (1995). *Distance-delivered tertiary programs for Indigenous People in Canada, Australia and New Zealand*. Saskatoon, Saskatchewan: University of Saskatchewan. This report is made up of 20 case descriptions of tertiary level distance-delivered educational programs developed specifically for indigenous students in three countries: Canada, Australia, and New Zealand. Included in each case is a description of the institutions and stakeholders involved in each course or program, history of the initiative, and its future. Each case focuses particularly on four areas: indigenous community involvements, inclusion of language and culture, student support, and course or program design and delivery. These are four of the areas identified in the literature as essential to the success of distance-delivered programs and courses for

indigenous people. The information is based on review of program publications and face-to-face interviews with educators at the 23 institutions visited. Each case begins with a brief description of the institution at which the program is housed to provide readers with a context for the case. This is followed by a description of the stakeholders. Next is a brief overview of the case followed by sections on history and community involvement, client profile, inclusion of language and culture, student/participant support, design and delivery, and future and challenges.

Facey, E. (2001). First Nations and education by internet: The path forward, or back? *The Journal of Distance Education*, 16(1), 113-125. This article details some of the issues that face First Nations communities in using and assessing online learning and technologies and provides recommendations for addressing these issues. These recommendations include: sufficient finances and control over the allocation to be able to obtain high-quality access to Internet-based education; First Nations are to be fully and equally involved in all stages of the educational design, delivery and evaluation of programs delivered through distance education; research led by First Nations to be conducted into the social, cultural and other implications of Internet use for First Nations students on a Nation-by-Nation basis.

Fahy, P. J., Steel, N., & Martin, P. (2009). The views and preferences of residents in four northern Alberta Communities regarding local post-secondary programming. *International Review of Research in Open and Distance Learning*, 10(3). http://www.irrodl.org/index.php/irrodl/article/view/673/1287 The province of Alberta has used some of the proceeds from exploitation of its extraordinary natural resources to make available a range of post-secondary training and education opportunities to residents. While these provisions appear comprehensive, this study examined how well they actually suit the express needs of the residents of remote, Northern areas of the province, many of them Aboriginal. The

literature shows that while Aboriginal people are underrepresented in Canada in university enrollments, they are no longer underrepresented in college or other institutions, suggesting that gains have been made for some residents of rural and remote parts of Canada. Further, when Northern residents (especially Aboriginal males) complete advanced training, Statistics Canada reports they are highly successful in employment and income. Access is the pivotal issue, however: leaving the local community to attend training programs elsewhere is often disruptive and unsuccessful. The authors cautioned that future programming inspired by this research should avoid mistakes made by others in relation to northern learners and their local realities: not considering students' preferences for programming, employing inappropriate technologies, failing to provide adequate orientation and support to the learning system, and failure to use existing, proven delivery models.

Faith, K., & Sturrock, J. (1990). Women and university distance education in Canada. *Women's Education des femmes*, 7(4), 16-19. This article presents some of the advantages of distance education to women and to Canadians isolated by distance and climate. Describes Canadian distance education developments in women's studies, teleconferencing, professional development, and programs for native women.

Fettes, M. (1998). Indigenous education and the ecology of community. *Language, Culture & Curriculum*, 11(3), 250-271. This article begins from the premise that indigenous community-based education can usefully learn from attempts to define and implement 'community education', even in settings far removed from the indigenous context. The first section shows how 'community education' has been developed on the basis of four fundamentally different concepts of community, all of which have some relevance to the challenges of indigenous education but are ultimately inadequate as a guide to practice. The second section shows how these

flaws can be traced back to an overly simplistic model of community rooted in European history. A way of extending this model is proposed which is compatible with a more complex and dynamic 'ecology of community'. This idea is developed in greater detail in the third section, employing a model of 'cultural negotiation'.

First Nations Technology Council. (2006). *First Nations ICT capacity building think tank.* **British Columbia: First Nations Technology Council.** In the February 2006 Budget, the Province of BC committed $5 million to build ICT capacity in First Nations communities. At the request of NetworkBC (Ministry of Labour and Citizens' Services), FNTC facilitated a Think Tank on ICT Capacity Building to help inform the development of a program that will be delivered in First Nations communities in the coming year. The purpose of the Think Tank was to provide expert input on building ICT capacities in the communities, with a focus on user-skills training.

First Nations Education Council. (2009). Paper on First Nations education funding. Wendake, Quebec: First Nations Education Council. http://www.cepn-fnec.com/file/autre/memoire_sur_financement_education_des_pn_fev2009ang.pdf This paper remarks on INAC's consistent underfunding of First Nations' education systems (from kindergarten through to college, trade-school, and/or university) and identifies specific funding needs at all education levels. When funding primary and secondary education for First Nations, INAC uses a funding formula developed in 1987 and ammended in 1996 to account for increased living costs and an increasing First Nations population. However, this ammendment also included a capped on funding increases of 2% per annum. In terms of funding primary and secondary education, this cap has meant a shortfall of $1.54 billion between 1996 and 2008 as well as an immediate shortfall of $233 million. While the funding shortfall is figured on a per student basis, this report also notes that INAC does not provide any funding for other crucial

components of an education system such as libraries, technologies (specifically ICT), sports and recreation, and Aboriginal language programs. As with funding for primary and secondary education, funding for post-secondary education for First Nations students is also inadequate. The Post-Secondary Student Support Program provides fixed annual funding capped at 2% annual increases for students. This inadequate funding is administered by band councils. The lack of funds means that band councils are forced to choose who gets funding and who does not. Currently there is a backlog of students waiting to get funding so they can attend post-secondary educational institutions. Indigenous Institutes of Higher Learning (IIHLs) are another important component of First Nations education systems. Originally created to provide bridging programs for First Nations students preparing to enter a post-secondary program, these institutes have developed to include accredited degree programs. INAC funds these institutions through the Indian Studies Support Program (ISSP). However the funding methodology for these institutions is not based on their actual needs or, for that matter, the needs of any post-secondary institution operating in Canada.

Freeman, K., & Morore, J. (2007). Testing a new talking stick: An Indigenous community organization and a Canadian university try desktop videoconferencing in partnership. *Society for Information Technology & Teacher Education International Conference.* **San Antonio, Texas: AACE.** www.editlib.org/d/24943/proceeding_24943.pdf This paper explores the usefulness of desktop videoconferencing in furthering the initiatives of an Indigenous teacher education program geographically remote from the university. The Aboriginal Teacher Education Program (ATEP) prepares Indigenous teachers for First Nation or provincial K-12 classrooms in Ontario, Canada, and is offered by Queen's University Faculty of Education in partnership with Indigenous communities at three remote locations. This small pilot was conducted with Indigenous partners in the

Manitoulin-North Shore (MNS) region to: 1) gain first-hand experience using desktop videoconferencing (DVC) with MNS ATEP community-based staff and management committee members; 2) evaluate the effectiveness of DVC in furthering ATEP administrative and learning initiatives; and 3) generate recommendations from participants concerning appropriate applications for DVC in Indigenous community-based contexts. A small literature review situates pilot findings within a broader context.

Greenall, D., Loizides, S. (2001). *Aboriginal digital opportunities: Addressing Aboriginal learning needs through the use of learning technologies*. Ottawa, Canada: Conference Board of Canada.
http://www.hrsdc.gc.ca/eng/hip/lld/olt/Skills_Development/OLTResearch/aborig_e.pdf
This report provides a general literature review of learning technologies with a specific focus on Aboriginal communities. After the review, the report offers case studies on the use of information and communication technologies in ten First Nations communities ranging from New Brunswick to The Yukon Territories. This report is based on three assumptions: (1) that Aboriginal communities are searching for ways to maximize the potential of technology; (2) Aboriginal learners are unique in their cultural needs; (3) each Aboriginal community is unique – though there are common 'good practices' for technology adoption and use. Although this report does not focus specifically on third-level education, in the case studies several communities identified adult learning as a priority. While there are a number of successful programmes such as the Advanced Training and Service Technology Certification Program at the Tobique Information and Technology Learning Centre in New Brunswick, there is also a need for financial and human resources in order to sustain projects after their initialization. In order for learning technologies to work, more First Nations' control over education and training is necessary so that technology training is relevant to the needs of the communities.

Gruber, S., & Coldevin, G. (1995). Distance education for Aboriginal communities in Canada: Past experience and future potential. *American Journal of Distance Education*, 9(3), 48-61. This article reviews problems with the current educational situation in Canadian Aboriginal communities. Notes the potential of distance education to reduce problems associated with cultural assimilation and to enhance multimedia resources. Discusses strengths and weaknesses of two distance education programs for Aboriginal peoples and concludes with guidelines for future distance education endeavors.

Halverson, G., & Thornburg, L. (2006). Adult basic education for aboriginal learners: The distance delivery continuum. *World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*. Hololulu, Hawaii: AACE.
www.editlib.org/d/23748/proceeding_23748.pdf Negahneewin College is Aboriginally controlled and it operates within and throughout Confederation College in Thunder Bay, Ontario, Canada. It serves a catchment area of more than 250,000 square kilometers, an area about the size of France. Negahneewin College offers adult basic training along a continuum of service delivery: in campus classrooms, synchronous satellite classrooms, and through asynchronous delivery to learners in their homes. Many learners are members of the 73 First Nation communities in Negahneewin's catchment area. To provide delivery on this continuum a flexible, learner-centered model, using a broad range of online/distance learning resources has been developed.

Heaton, L. (2006). Telehealth in Indigenous communities in the far north: Challenges for continued development. In M. Murero, & R. E. (Eds.), *The Internet and Healthcare: Theory, Research and Practice* (pp. 335-356). Mahwah, NJ: Lawrence Erlbaum Associates. This research explored the use of videoconferencing for continuing medical education in Nunavut. Challenges raised in the study included scheduling issues over time zones and inflexibility of booking

(especially if a session went overtime, and some participants were cut off the scheduled videoconference). The staff demonstrated creativity in overcoming obstacles (faxing slides to sites only able to participate by phone, and so on). In interviews staff stated that these sessions minimized their feelings of personal and professional isolation that they usually face when working in remote communities. This method of continuing medical education was quite popular; participants stated these sessions often were the only ways to get recent information while others noted that the sessions saved them a lot of time searching on the internet.

Hick, S. (2002). Connecting Aboriginal learners in remote communities: An online social work course. In H. Resnick & P. S. Anderson (Eds.), *Human Services Technology: Innovations in Practice and Education* (pp. 267-282). United States: The Haworth Press, Inc. This article describes an Internet mediated first year social work course for First Nation participants. It was developed to meet the needs of several remote communities in Canada for distance education in social work. The course description discusses the course structure and instructional design, and presents how the author came to the decision to develop such a course. An evaluation comprised of a focus group with 20 First Nation course participants from remote communities in Canada is also presented. The online course was part of a larger study to develop a learning model for remote Aboriginal communities in Canada. This arose due to an expressed need by several communities for distance education to educate social workers from their cultures and communities. This, they believe, will enable them to obtain a higher degree while staying connected to their local community. A major concern in remove Aboriginal communities is that social workers in the community are unfamiliar with Aboriginal culture and local conditions. The experience and evaluation detailed in this paper illustrates the need to further explore how the Internet can be used to make quality education available to remote Aboriginal

learners in their communities. Online social work education is not the panacea to address the needs of remote Aboriginal learners and it could pose significant dangers and limitations. The author notes that it does however provide other method with potential positive impacts and effects.

Ignace, R., Ignace, M. B., Layton, M., Sharma, H., & Yerbury, J. C. (1996). Partners in success: The Simon Fraser University and Secwepemc First Nations studies program. *Canadian Journal of University Continuing Education*, 22(2), 27-45. A collaboration between Simon Fraser University and the Shuswap Nation Tribal Council resulted in an extension program that enhances Native students' knowledge of history, language, and culture while they acquire academic credentials. The program enables them to stay in their communities, although it limits their experience of campus life and resources.

Ives, N. G., & Aitken, O. (2008). Technology and access: Responding to the social work education needs of First Nations and Inuit communities. *Social Work Education*, 27, 683-692. Ives and Aitken discuss the outcomes of delivering social work education at a distance to Community Services staff members in Kahnawake, a First Nation community near Montreal. Course modules were offered via McGill University's MyCourse website and included readings, audio and video clips, reflection logs, quizzes and downloadable toolkits. Instructional support was available online via email and videoconferencing. Responses were positive, but issues included computer problems and access issues. The authors conclude that communities need to be involved and course material needs to be adapted for Indigenous communities otherwise social work could contribute to continued cultural imperialism and colonization.

Jewison, C. (1995). Our students, our future: Innovations in First Nations education in the NWT. *Education Canada*, 35(1), 4-11. This article traces trends in Aboriginal education in Northwest Territories (Canada) since the

early 1980s when the territorial department of education committed itself to locally controlled, culture-based education. It examines local accountability, culturally relevant curriculum, role of elders, native language instruction, Aboriginal teacher education, dropout programs, health factors, preschool education, access to secondary and postsecondary education, and distance learning technologies.

Johnston, T. (2008). A telehealth initiative: Health education by video conference. *Presentation at the First Nations ICT Summit, Vancouver, February.* Access to services and training is an issue for all Aboriginal communities. Telehealth technology has an important role to play in connecting health professional in the North to other resources. The project chose videoconferencing technology for delivery of courses on health and wellness. Videoconferencing can minimize the impact on the local organization; reduce the impact on students; reduce the cost of course delivery; eliminate geographical barriers; and enable a live classroom interaction. In Fall 2007, ITHA Telehealth and ITHA Vancouver Island Chronic Care Project teamed up with Malaspina University College to bring mini credit courses to all 51 First Nation communities with videoconferencing capabilities. Video conferencing is a viable tool that can be used for course delivery to isolated nations.

Johnston, T. L. (2001). *Experiences of female students completing a full-time aboriginal program by computer mediated communication*. Unpublished Master's thesis, Lakehead University. The author examines the experiences of female Aboriginal students who were completing a full-time college program by computer-mediated communications (CMC). The analyses of the interrelationships resulted in the identification of barriers to positive post secondary educational learning experiences and to the participants' concepts of themselves as learners. The participants' experiences in the Aboriginal Teacher Assistant Program were then examined in relationship to these

barriers. The participants' successfully completed this full-time college program and reported positive experiences in doing so. Through the analyses of their experiences, factors that led to the participants' success were identified. It was determined that for these women to be successful, not only must education be community-based, flexible and holistic but also foster and nurture relationships between and among students and instructor. These factors were supported by the CMC method of delivery. Implications include providing (1) appropriate technologies, (2) multiple ways of connecting and interacting and (3) face-to-face components when delivering Aboriginal programs to women at a distance. It is also important that we identify the characteristics of teachers who are respectful to Aboriginal values and who are successful in creating interpersonal connectedness through computer-mediated communicative alternatives.

Keast, D. A. (1997). Toward an effective model for implementing distance education programs. *American Journal of Distance Education*, 11(2), 39-55. This article describes the implementation and evaluation of the partnership between the University of Alberta, Fairview College, and Kayas Cultural College offering synchronized, multipoint video conferencing for introductory faculty of arts courses in remote regions of Alberta, Canada. Aboriginal people constituted 70% of the students in the first year. The article proposes a model for effective distance education initiatives.

Keast, D. (1995). Access to university studies: Implementing and evaluating multi-point videoconferencing. *Canadian Journal of Continuing University Education*, 23(1), 29-47. This article discusses a pilot project from the University of Alberta to remote communities where approximately 70% of the students enrolled were Aboriginal. Courses were delivered via multi-point videoconferencing to a maximum of six sites. Based on student's evaluation of course delivery, issues were raised concerning

program planning and administration. Specifically they expressed a need for more course information, advising, career counseling, and access to students. The program had a 51% completion rate.

Lindberg, T., Campeau, P., & Makokis, J. (2003). Indigenous distance education and the prospects for cultural survival. *Cultural Survival*, 27(4). http://www.culturalsurvival.org/print/3825 This article insists that Indigenous education models must be developed both inside and outside the public education system for Indigenous learners.

Louisieze, K. (2009, February). Delivering Skills to First Nations. Northern Ontario Business. Sudbury. http://www.thefreelibrary.com/Delivering+skills+to+First+Nations.-a0194818234 A pilot program is underway in almost 30 First Nation communities in the northwest to determine if more apprenticeship certification can be completed using distance education.

Matthew, M. (2000). *The cost of quality First Nations education*. Vancouver, BC: First Nations Education Steering Committee. http://www.fnesc.ca/Attachments/Publications/PDF%27s/pdf/CostofQualityEd.pdf The purpose of this paper is to identify the real costs of quality education for First Nations who are negotiating treaty, self-government and land claims agreements. It is recognized that, prior to entering into agreements, it is important for First Nations to have a thorough understanding of the funding needs associated with delivering comprehensive education programs.

McCue, H. (2006). *First Nations 2nd & 3rd Level Education Services. A discussion paper for The Joint Working Group INAC – AFN*. Harvey McCue Consulting. This paper discusses the Regional Management Organizations involved in administering first and second level education to First Nations learners across Canada. The consultation also notes the need for RMOs and an education council overseeing third level education for First Nations communities. These organizations would be representative of the interested communities. These organizations for third level First Nations' education are crucial to developing a complete First Nations system of education with control of education from K-12 and on through university and/or college.

McMahon, R., O'Donnell, S., Smith, R., Woodman Simmonds, J., Walmark, B. (2010) Putting the 'last-mile' first: Re-framing broadband development in First Nations and Inuit communities. Vancouver: Centre for Policy Research on Science and Technology (CPROST), Simon Fraser University, December. URL: http://www.sfu.ca/cprost/tacs.html This report is a comprehensive overview of the situation across Canada related to broadband infrastructure development in remote and rural First Nations and Inuit communities. Applications discussed include distance education.

McMullen, B., & Rorhbach, A. (2003). *Distance education in remote Aboriginal communities: Barriers, learning styles and best practices*. Prince George, BC: College of New Caledonia Press. A number of organisations and communities have been innovative in delivering high school and post-secondary education programs by distance delivery and have achieved dramatic success. However, few education institutions and education directors know of these successful models and few have been able to learn from these experiences. The best practices presented in this book are the measures by which a number of communities and education institutions have successfully developed and delivered distance education courses. Best practices are often related to local needs and the environment but many practices can be adapted to any distance education programme and should be considered by those delivering courses by distance. Best practices discussed in this book include the involvement of on-site tutors, flexible delivery models and the need to develop personal relationships between the

parties involved. Best practices also included the need to adapt delivery of courses to the available and appropriate technology.

Molyneaux, H., O'Donnell, S., Liu, S., Hagerman, V., Gibson, K., Matthews, B. et al. (2007). *Good Practice Guidelines for Participatory Multi-Site Videoconferencing*. Fredericton: National Research Council. ERB-1151. NRC 49869. This report analyzes recent literature and contributes expertise from researchers and practitioners in the field to develop good practice guidelines for multi-site videoconferencing - linking people in multiple sites with videoconferencing. The goal was to develop effective, empowering and contextually-sensitive good practice guidelines that encourage participation in multi-site videoconferencing.

Murphy, T. C., Ryan (2009). Trusting our voices: Transforming a rural community through digital media. http://www.cea-ace.ca/media/en/Trust_Winter09.pdf. This article looks at the development of *Trust Our Voices,* a student led video production about bullying and family violence in and around the community of Buffalo Lake Métis Settlement. The author then moves on to discuss how the local School, Caslan, and the community have developed strong bonds through the development of a culturally appropriate curriculum.

O'Donnell, S., Milliken, M., Chong, C., Walmark, B. (2010*). Information and Communication Technologies (ICT) and remote and rural First Nations communities: An overview*. Paper presentation at the annual meeting of The Canadian Communication Association, Montreal. While not dealing specifically with third level education via internet and communications technologies, this overview examines the issues of access to ICT in remote First Nations communities. ICT is crucial to any possibility of third level distance education in remote communities. Thus at the same time this overview mentions some of the more general barriers to ICT access, it inevitably identifies the few recent studies of ICT and third level education (such as for the professional healthcare industry) in remote communities. It also gives a brief history of ICT and First Nations communities beginning in the 1970s.

O'Donnell, S., Walmark, B., Hancock, B-R. (2010) Videoconferencing in Remote and Rural First Nations Communities, in White, J., Peters, J., Beavon, D., Dinsdale, P. (eds) *Aboriginal Policy Research Volume 6: Learning, Technology, and Traditions*. Toronto: Thompson Educational Publishing, 128-139. http://iitatlns2.iit.nrc.ca/iit-publications-iti/docs/NRC-50764.pdf This chapter discusses findings from a SSHRC-funded study of First Nations organizations that are supporting the use of video communications by rural and remote communities. The discussion explores why visual communication is important for First Nations, the prevalence and purposes of videoconferencing in non-institutional settings, and the challenges the communities experience using this technology. The central theme of this paper is that videoconferencing is a vital tool for remote and rural First Nations and in order for it to become widely used, the technology has to be a part of everyday life in communities and not just restricted to telehealth and distance education. Further, if we can find ways to increase the use of videoconferencing in non-institutional settings by everyone in First Nations communities, the technology will be used more often for institutional applications. Thus, increasing the non-institutional, everyday use of videoconferencing will have a positive impact on its use for telehealth and distance education. The paper includes recommendations for policy makers to support the more widespread use of this powerful communication technology by remote and rural First Nations.

O'Donnell, S., Perley, S., Simms, D., & Hancock, B-R. (2009). Video communication roadblocks facing remote Indigenous communities. *IEEE Technology and Society Magazine*, 28(2), 16-22. This article discusses the challenges for video communications in remote and rural First Nations communities. Central to the analysis are social and technical issues as well as the ICT experiences of community-based organizations and community members. The authors use an analytical framework to identify challenges in four categories: technical infrastructure, the interactions of the users with the technical infrastructure, the production and reception of audio-visual content, and the organizational and social relations. The findings underline the need for community capacity building to address these challenges and use video communications to its full potential.

Perley, S., & O'Donnell., S. (2006). *Broadband video communication research in First Nation Communities*. Paper presentation at the annual meeting of The Canadian Communication Association, London, June. This paper provides an overview of policies and strategies for broadband infrastructure and access, and broadband video communication development and use in First Nation communities in Canada. Although using broadband for video communication remains underdeveloped in First Nation communities as a whole, successful initiatives have been underway for many years, particularly in the areas of distance education and telehealth applications. There has been little research on other kinds of applications. The authors discuss approaches to doing research with Aboriginal communities. Clearly there are many opportunities for researchers to investigate and explore the possibilities of broadband video communication for First Nations across Canada. However researchers working on these projects in First Nation communities will face a number of challenges. The authors discuss these challenges and outline some ways forward.

Petten, C. (2005). Program uses distance learning to provide training. *Saskatchewan Sage*, 9(8), 13-13. The article reports that soon a computer with Internet access will be all a person living in a remote community will need to receive industry recognized information technology training, thanks to the First Nations Distance Learning Program. The program is being developed by Cisco Systems Canada, a worldwide leader in networking for the Internet, in partnership with Industry Canada, Human Resources Skills Development Canada and First Nations SchoolNet regional management organizations (RMOs). Cisco has been offering IT training through its academy since 1998 and currently offers programs at the entry level, mid level and higher levels.

Rice-Green, J., & Dumbrill, G. C. (2005). A child welfare course for Aboriginal and non-Aboriginal students: Pedagogical and technical challenges. *Journal of Technology in Human Services*, 23(3/4), 167-181. This article describes the development of a Web-based undergraduate child welfare course for Aboriginal and non-Aboriginal learners. Rather than simply incorporate an Aboriginal perspective into Eurocentric pedagogies and course structures, the authors disrupt the dominance of Western ways of knowing in education by designing the course to situate Western knowledge as a way of knowing rather than the way of knowing and the frame from with all other perspectives are understood. In this research the authors describe the differences between Aboriginal and European thought and reveal how Web-based courses can be designed in ways that do not perpetuate Eurocentrism.

Richards, J. (2008). *Closing the Aboriginal/non-Aboriginal education gaps*. Toronto, Ontario: C.D. Howe Institute. http://www.cdhowe.org/pdf/Backgrounder_116.pdf Richards observes the disparity in education levels between Aboriginal and non-Aboriginal students. Despite federal and provincial goverments', and national Aboriginal leaders' commitments in the 2005 Kelowna Accord to close the high-school gap

in ten years, the current trend indicates that this commitment will not be met. Richards calls for a Native run education system that operates apart from local bands. He points to the First Nations Education Steering Committee (FNESC) in British Colombia as an example of how a Native run educations system might work. In order to close the gap education administrators must be focused on better education outcomes for Aboriginal students.

Robinson, M. (1992). *Linking Distance Education to Sustainable Community Development*. (Arctic Institute of North America Report 20). Calgary, AB. http://www.eric.ed.gov/PDFS/ED400152.pdf This paper explores the emerging relationship between distance education and sustainable development. After ranging through the literature on sustainable community development, this essay concludes that above all it must be unified: it must combine the traditional economic criteria for success (profits and employment) with a fusing of community and corporate culture and a strong applied ethic of environmental stewardship. As well, successful sustainable community development must be mindful of the quest for the well-lived life. The most obvious link between such development and distance education is that distance education serves small communities, many of which are infused with traditional wisdom and struggling to recapture self-reliance in economic conditions of change and unpredictability. In many northern Canadian communities, people are also concerned with environmental stewardship issues, which typically are introduced from outside and appear beyond local control. Distance education can empower adults in small communities to undertake participatory action research to solve local problems. In the Arctic Institute's experience with Native communities, both locally developed curriculum materials and community-based adult education programs can nurture community empowerment, cultural and language maintenance, and entrepreneurship.

Robinson, S. (2009). Literacy lives here: Using video and dialogue to promote and celebrate adult and literacy education in the Canadian Western Arctic. *New Directions for Adult and Continuing Education*, Winter 2009(124), 15-23. The Canadian North, one of the most isolated parts of the world, has been subject to increased scrutiny as a source of untapped oil and gas, a global warming harbinger and casualty, and a center of international sovereignty debate. What is often forgotten is that in addition to a resource bed and a border, the Arctic is first a homeland--a homeland to nations of peoples of whom much has been asked and to whom not much has been given, especially in terms of education and literacy for Aboriginal Northerners. This chapter explores the use of video as a tool to dialogue with Northerners in order to better understand their perspectives on education and literacy. The themes arising from the research provide direction for improving communication, teaching, and research in the North or anywhere else that educational inequality exists. For this chapter, "Northerner" refers to a resident of the Northwest Territories (NWT), half of whom are Aboriginal or indigenous Canadians. "Southern" refers to Southern Canada, below the sixtieth parallel.

Russell, C. K., Gregory, D. M., Care, W. D., & Hultin, D. (2007). Recognizing and avoiding intercultural miscommunication in distance education: A study of the experience of Canadian faculty and aboriginal nursing students. *Journal of Professional Nursing*, 23(6), 351-361. Language differences and diverse cultural norms influence the transmission and receipt of information. The online environment provides yet another potential source of miscommunication. Although distance learning has the potential to reach students in cultural groups that have been disenfranchised from traditional higher education settings in the past, intercultural miscommunication is also much more likely to occur through it. There is limited research examining intercultural miscommunication within distance education environments. This article presents the results of a qualitative

study that explored the communication experiences of Canadian faculty and Aboriginal students while participating in an online baccalaureate nursing degree program that used various delivery modalities. The microlevel data analysis revealed participants' beliefs and interactions that fostered intercultural miscommunication as well as their recommendations for ensuring respectful and ethically supportive discourses in online courses. The unique and collective influences of intercultural miscommunication on the experiences of faculty and students within the courses are also identified. Instances of ethnocentrism are illustrated, noting the effects that occurred from holding dualistic perspectives of us and them. Lastly, strategies for preventing intercultural miscommunication in online courses are described.

Russell, C., Gregory, D., Hultin, D., Care, D., Courtenay, M. (2005, April). *Cultures within cultures: Canadian aboriginal students' experiences in online learning communities*. Paper presentation at the annual online meeting of The Association of Technologies, Colleges and Communities. Honolulu, Hawaii*.* This paper describes the results of an exploratory descriptive study examining Canadian Aboriginal nursing students' experiences while participating in an online degree program that used various delivery modalities. The researchers conducted 22 focus groups with Aboriginal students in 3 locations in the province of Manitoba (n=60 participants) and 4 individual interviews with Aboriginal students who were unsuccessful in their educational programs. Their analysis revealed issues affecting students' learning experiences, including technology, faculty, support staff, students at other distance sites, and the learner's community.

Sanchez, J., Stucky, M. E., & Richard, M. (1998). Distance learning in Indian country: Becoming the spider on the web. *Journal of American Indian Education*, 37(3 Spring), 5-7. This article examines potential uses of distance learning for maintaining and sustaining American-Indian tribal communities within the United States while allowing access to the information and skills needed for employment in the dominant society. It examines distance education in general, traditional education in tribal contexts, tribal uses of distance-education technology, and potential outcomes and consequences.

Senkpiel, A. (2000). Building capacity: The University of the Arctic and its northern Canadian context. *Northern Review*, 22 (Winter), 126-37. A proposed university in the circumpolar North would have undergraduate and graduate programs, be interdisciplinary, collaborate with other Northern countries and universities, and offer a circumpolar course to develop understanding of the Arctic. After many false starts, most components are already in place; all that is needed is determination, money, and organizing.

Sharpe, D. B. (1992). Successfully implementing a native teacher education program through distance education in Labrador. In D. Wall, & M. Owen (Eds.), *Distance Education and Sustainable Community Development* (pp. 75-85). Edmonton, AB: Canadian Circumpolar Institute with Athabasca University Press. Sharpe describes various course delivery strategies of an indigenous teacher program in Labrador by Memorial University of Newfoundland. Out of the various course delivery strategies used in these communities teleconferencing, combined with other course delivery methods, seems to be most useful. The author suggests that teleconferencing can be enhanced by increased teleconferencing time, prior contact between instructor and students, community contacts and support persons, use of facsimile machines and collect telephone calls to increase student contact, hiring on-site tutors and the use of indigenous peoples as resources.

Sisco, A. (2010). *Optimizing the effectiveness of E-learning for First Nations.*(The Conference Board of Canada, Report) Ottawa, Ont: Gov. of Canada. E-learning can help close the education gap between First Nations people living on a reserve and Canada's non-Aboriginal population. Based on a brief literature review and interviews, this report found that optimizing the effectiveness of e-learning in improving the educational outcomes of First Nations people living on a reserve requires: better engagement of First Nations in e-learning program development and implementation; the development of an e-learning strategy; an increase in funding amounts and the extension of funding terms for e-learning; the assessment of community needs and educational outcomes; building tools and capacity to support e-learning; the development of a strategy to improve teacher engagement; consideration of generational differences among students; the promotion of student commitment; the expansion and increased flexibility of programs, with holistic program delivery; and better integration of e-learning under the overall Indian and Northern Affairs Canada education umbrella.

Spronk, B. (1995). Appropriating learning technologies: Aboriginal learners, needs, and practices. Why the information highway? In J. Roberts, & E. Keough (Eds.), *Lessons From Open and Distance Learning* (pp. 77-101). Toronto, ON: Trifolium Books. The author describes the historical, economic, cultural and political situation of First Nations peoples in Canada. Using this information as a context the author details a variety of collaborative distance education and Native Studies programs being delivered across the country. She credits these programs with increasing the participation of Aboriginal students in post-secondary institutions through improved accessibility. Spronk surveys the program mandates and examines the challenges experienced with program delivery such as curriculum and course content, instruction and delivery, and political and economic constraints.

Spronk, B., & Radtke, D. (1988). Problems and possibilities: Canadian native women in distance education. In K. Faith (Ed.), *Toward New Horizons for Women in Distance Education: International Perspectives* (pp. 214-228). London: Routledge. The authors examine the issues faced by Aboriginal women who attempt distance education. They cite Aboriginal women as 80% of the enrollers in distance education programs available to Aboriginal people through Athabasca University. They state that distance learning is attractive to Aboriginal women because it is self-paced and allows them to fulfill family and community responsibilities. Distance learning also eliminates transport and child care problems for these women. Various program delivery models and student services are discussed and their effectiveness is rated.

Stonechild, B. (2006). *The new buffalo: The struggle for post-secondary education in Canada.* Winnipeg, Manitoba: University of Manitoba Press. This work focuses on post-secondary policy development in Canada from the late nineteenth-century through to the present-day. At the heart of policy development, there is a fundamental disagreement concerning First Nations post-secondary education between First Nations and the Federal Government of Canada. While First Nations continue to uphold post-secondary education as a treaty right, the Canadian government sees it as merely a social concern. As long as the Canadian Government continues to view First Nations post-secondary education in such a light it will be able to whimsically cut and cap funding despite the legal trend in the Canadian courts of interpreting access to post-secondary education as a treaty right. These disparate views mean that as First Nations continue to create, develop, and maintain Indigenous Institutes of Higher Learning, the Canadian Government and more specifically INAC continues to underfund these institutes. Moreover in order to gain accreditation and continue to receive funding under the Indian Studies Support Program (ISSP), these institutes are required to partner, often inequitably, with other

universities. This despite a remarkably higher success rate for First Nations students attending Indigenous Institutes of Higher Learning (IIHL) compared to those attending other universities. As such post-secondary education is still often used as a tool of assimilation, though, as evidenced by IIHLs it can also be a means of empowerment.

van Weert, T., & Deer, K., et al. (2005). An indigenous approach to bridging the digital divide. *Education and the Knowledge Society*, 161, 237-240. Knowledge, information and communication are at the core of the emerging global Information Society. Knowledge, information and communication, however, are culturally defined concepts and expressions. Also, ICT are cultural products of the society that has developed them. Indigenous Peoples have their own concepts of knowledge, information and communication and have developed their own forms of information communication. Therefore Indigenous Peoples need to take part in the Information Society on their own terms and on the basis of their cultural backgrounds, to be able to shape their future without risking to lose their cultures and identities. This project aims to contribute to this process by addressing four major aspects: identification and development of culturally appropriate ICT applications; elaboration of Indigenous approaches and strategies to bridge the digital divide; design of culturally appropriate capacity-building tools; elaboration of culturally appropriate development strategies for utilisation of ICTs for poverty reduction.

Voyageur, C. J. (2001). Ready, willing, and able: Prospects for distance learning in Canada's First Nations community. *Journal of Distance Education*, 16(1), 102-112. This article describes a study conducted by Athabasca University that investigated the use of information technology by First Nations communities in Canada, often in remote and rural areas, to help determine their readiness for distance learning opportunities for postsecondary education. It discusses

individual technology use and community technology use.

Whiteduck, J., Burton, K., Whiteduck, T., & Beaton, B (2010). A First Nations perspective on a digital economy strategy and an Aboriginal connectivity strategy. *Letter to The Minister of Industry, Hon. Tony and The Minister of Indian and Northern* Affairs, Hon. Chuck Strahl. http://de-en.gc.ca/wp-content/themes/clf3/upload/1938/Aboriginal-Connectivity-AFN-First-Nation-Submission.pdf This position paper submitted to the federal government was coauthored by representatives from First Nation organizations concerned with the support and use of broadband technologies in First Nation communities. It proposes several key initiatives to include First Nations in Industry Canada's Digital Economy Strategy consultation. The letter suggests that government and industry work with First Nation leaders to develop federal strategies so that these strategies meet the connectivity needs of First Nation communities. According to the letter these needs include, but are not limited to, education, telehealth, and public works. The authors also indicate the necessity of a sustainable, long-term plan for broadband infratstructure that is owned and operated by First Nation communities. Rather than a one-time funding initiative, which certainly has its place, this letter asks that support for a national network of First Nation organizations be ongoing. In order to make this technology relevant to First Nation needs, the authors propose following "The First Nations e-community ICT model" which is the same model that every institution and corporation across Canada uses.

Wiseman, D., & Jetté, C. M. P. (1999). Teaching technology through tradition: Native access to engineering at Concordia University. *WebNet World Conference on the WWW and Internet Honalulu, Hawaii, AACE*. www.editlib.org/d/7695/proceeding_7695.pdf The Native Access to Engineering Program addresses issues related to the under-representation of Aboriginal people within the science and engineering sectors in Canada.

Because its target audience is widespread and largely remote, the program benefits from the Canadian government's commitment to national connectedness by distributing materials and developing initiatives via the World Wide Web (WWW).

Zapf, M. K. (1995). Crossing cultural and geographic boundaries: Teaching social work courses in Aboriginal outreach programs. *Human Services in the Rural Environment*, 18(4), 21-26. This article examines outreach and cultural exchange in the design and delivery of social work courses offered in Canada's Aboriginal communities. It discusses the contract between the educational institution and the Aboriginal community, issues encountered by instructors in outreach programs, the appropriateness of distance education, and efforts to incorporate Aboriginal content into the central campus program.

Zapf, M. K., & Bastien, B., et al. (2000). The learning circle: A new model of BSW education for Alberta's rural, remote, and Aboriginal communities. *In Issues Affecting Rural Communities (II). Proceedings of the International Conference on Rural Communities & Identities in the Global Millennium (Nanaimo, British Columbia, Canada, May 1-5)* In 1998, a consortium including the University of Calgary (Alberta) and representatives from social service agencies and Native organizations developed a Bachelor of Social Work (BSW) model for delivery in rural, remote, and Aboriginal communities. The model called for innovative course content that was culturally and geographically relevant to Metis and First Nations peoples; was aligned with traditional philosophies and knowledge systems; was flexible in time, place, and mode; and integrated the best of distance education technology with face-to-face opportunities. The conventional program structure was changed to a predominately nonhierarchical structure--the "Learning Circle." Core content was organized into four main theme areas that comprised the outer ring of the Learning Circle. Students could take them in any order.

Optional courses, the inner ring, could be taken at any time in the program. The four theme courses, related projects, and optional courses would be completed before the practicum, at the center of the Learning Circle, was begun. Instruction was begun in January 2000 with 73 students at 6 sites. Lessons learned include an expanded meaning of "access" that encompasses cultural relevance, the need for realistic time frames for initial program development, the discovery of community-level confusion about requirements for degree completion, the need for a flexible definition of "full-time student," and the need to move slowly in integrating distance education technology.