COMMUNITY-BASED BROADBAND ORGANIZATIONS AND VIDEO COMMUNICATIONS FOR REMOTE AND RURAL FIRST NATIONS IN CANADA

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This research demonstrates how two community-based First Nations' organizations use video communications on broadband networks to support socio-economic development. This study situates K-Net and the Atlantic Help Desk within a broader social movement, working toward self-determination for First Nations in Canada, through the use of video communications.. Video communications within broadband networks include videoconferences (live and archived) and online videos. The research methodology includes an analysis of hundreds of videoconferences and videos archived by the two organizations as well as interviews with key informants.

Introduction

In May 2007, using web-streaming, Grand Chief Stan Beardy of the Nishnawbe-Aski Nation, addressed the United Nations' Conference on Indigenous Peoples' Communications for Development in New York from

Thunder Bay. Mr. Beardy outlined the importance of videoconferencing and streaming video technologies for remote First Nation communities:

> "My presentation to you today represents a remarkable achievement by our people to not only harness the power of information and communication technologies but also to adapt these technologies to address our political, social and economic agenda."

That June, students from Eel Ground First Nation School in New Brunswick produced a music video and posted it online as part of a program to address youth suicide. The lyrics, set to music with images of Indigenous youth, describe the alienation of Aboriginal youth who are "barely hanging on."

Both activities demonstrate how First Nations in Canada are harnessing visual technologies to promote local priorities and establishing new national agendas. This study explores how K-Net and the Atlantic Help Desk are facilitating the use of technologies for community development in remote and rural Indigenous communities in two distinct regions of Canada.

K-Net, based in Sioux Lookout, Ontario, is the largest First Nations' broadband network in Canada, linking over 70 First Nations and more than 30 non-Aboriginal communities throughout the provinces of Ontario, Manitoba and Quebec. The second organization, the Atlantic Canada's First Nation Help Desk & Mi'kmaw Kina'matnewey, based in Membertou First Nation, Cape Breton, Nova Scotia, has 30 sites on its network in the four Atlantic provinces. Beyond their other work, both organizations provide broadband connectivity and services to First Nations' schools in their role as Regional Management Organizations (RMO) for Canada's First Nations SchoolNet program.

This study focuses on the use of video communications for community development activities beyond telehealth and public education. The larger research project explores the implications of broadband video communications for social change and how technologies can support First Nations' community development goals.

Research context

The Royal Commission on Aboriginal Peoples (1996) found that the historical treaties with First Nations were undermined by assimilation policies. Their agenda to remove Aboriginal people from their homelands, suppress Aboriginal governments and destroy cultures and languages.

RCAP (1996) documented the impacts of the federal policies, which included the following: lower life expectancy; higher rates of disease, family violence and alcohol abuse; lower rates of academic readiness; inadequate housing, water and sanitation systems; high unemployment; and rates of incarceration. The Commission identified a range of remedies for these injustices, including self-government and self-determination (RCAP, 1996).

After a century old struggle for self-determination (Miller, 2000), a new tool was identified more than a decade ago when researchers argued that the Internet could be used by Indigenous nations to address historic grievances (O'Donnell and Delgado, 1995). Remote and rural First Nations communities in Canada have become leaders in the use of broadband networks. By 2005, the Assembly of First Nations was mandated to seek the resources to connect broadband infrastructures, capable of providing reliable video to all First Nation communities in Canada.

Broadband networks that support reliable video communications – including multi-site videoconferencing and online videos – offer remote and rural First Nations a means to achieve local priorities. Existing research on broadband video in Aboriginal communities focuses almost exclusively on telehealth and distance education applications (Bale et al., 2005; Keewaytinook Okimakanak, 2005; Masum, Spence and Brooks, 2005; Muttitt et al., 2004; Aitkin et al., 2004; Elias et al, 2004; Ramirez et al., 2004; Fiser, 2004b; Care, 2001 and 2003; Downing, 2002).

Little research exists on First Nations use of broadband video communication for other purposes. Research by Ferreira et al. (2004a, 2004b) explores how participatory video in Northern Ontario leads to empowerment and policy development. Ferreira et al's. (2004a, 2004b) work demonstrates how First Nations can utilize video communications for a range of social, economic, political and cultural activities (Perley and O'Donnell, 2006).

This research situates two First Nations' organizations in a broader social movement. The conceptual link between social movements and computer networks was articulated by Manuel Castells' work on the "network society" (1996, 1997, 1998). He argues that since the end of the Second World War and accelerated since the 1970s, a combination of capitalist restructuring and technological innovation have transformed society (Castells, 1989). Castells examines contemporary conflicts such as the "rise of the fourth world" and social movements (Castells, 1997). Castells argues while globalisation is transforming the world, it is also disenfranchising societies. Social movements are rooted in the resentment

created when people lose control over their lives. He understands digital networks as transformative technologies that assist social movements to mobilize and influence social, political, economic and cultural change. Castells (2001) argues that social movements use communications to reach out to those who would share similar values and influence society more broadly.

Within Castells' theoretical framework, the two organizations demonstrate that First Nations use broadband video communications not only for community development but for political, economic and social change. Research questions addressed here include the following: To what extent are the two organizations - K-Net and the Atlantic Help Desk - using broadband networks to support video communications for community development? Do these organizations understand their activities within the context of Castells' thesis? Is each organization part of a broader network, working with other groups for social, economic and political change?

Research Method

The research project is a partnership between the researchers and the organizations in question. Developing and maintaining partnerships in the Aboriginal context is critical (Perley and O'Donnell, 2005; 2006). The partners include the National Research Council Institute for Information Technology (NRC-IIT) and the University of New Brunswick (UNB) in Fredericton, New Brunswick; K-Net in Sioux Lookout, Ontario and KORI (the Keewaytinook Okimakanak Research Institute) in Thunder Bay, Ontario; and the Atlantic Help Desk in Cape Breton, Nova Scotia. K-Net and the Atlantic Help Desk are 3,500 kilometers (four separate flights) apart. The researchers in Fredericton are 650 kilometers (an eight-hour drive) away from the Atlantic Help Desk, and 2,850 kilometers (three separate flights costing $1,200) away from K-Net.

This research adopts a participatory approach, adapted to Canadian geography. Face-to-face contact among partners is prohibitive. The partners meet monthly by multi-site videoconferencing and communicate on-line between monthly meetings. The partners seek to find consensus on study direction, activities and goals. The research follows ethical guidelines[1] developed by the Keewaytinook Okimakanak Research

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[1] To see the guidelines, go to: http://research.knet.ca/images/upload/06-12-11_Community%20Consultation%20Guidelines.pdf

Institute (KORI), the research wing of Keewaytinook Okimakanak (KO) (http://research.knet.ca/) in consultation with Elders, youth, women and other community members.

For this study, the researchers used a mixed methods approach: a content analysis of a random sample of 100 videoconferences from the 293 videoconferences archived on a K-Net server and a random sample of 100 videos from the 203 found on the servers of the two organizations, a traffic analysis of the K-Net videoconference bridge log for a nine-week period ending early 2007, and 15 in-depth interviews with staff and associates of K-Net and the Atlantic Help Desk in April 2007.

Research findings

The Organizations Actively Support Videoconferencing in First Nations

K-Net and the Help Desk both use their videoconference bridge to support videoconferences, multi-site videoconferences, and web streaming for simultaneous audio-visual exchange. K-Net's bridge handles an average of 19 videoconferences weekly with two or more sites. K-Net also works with its Ontario government telehealth partner to provide bridging services, infrastructure and community capacity for an average of 10 telehealth sessions a week in remote communities. Both K-Net and the Atlantic Help Desk initiate many short test videoconference calls with community sites to ensure the functionality of networks and equipment and to build community capacity. Both initiate point-to-point videoconferences within and outside of their networks.

The content analysis, bridge log analysis, and in-depth interview findings suggest K-Net supports about 1,000 videoconferences a year, in addition to telehealth sessions. The findings suggest that the Atlantic Help Desk supports about 150 videoconferences a year.

Videoconferencing Fosters Community Development Initiatives

The content analysis of the videoconferences determined that 62% of these events were for learning related, personal, professional or community development. A typical example was a multi-site interactive seminar for community health professionals on diabetes prevention. For 14%, the main purpose was to hold meetings. Another 14% included

community get-togethers such as to link with Elders from different communities. Another 9% streamed events which involved large numbers of participants across the country and around the world.

The content analysis found that the most common topic of the videoconferences (59%) was health and wellness. For 14%, the topic was education and learning. For 9%, it was culture and language. For 6%, the main topic was information and communication technology. In addition, 32% included information and communication technology as part of the other main topic of discussion. For 5%,, the topic was economic and community development. 4% of the videoconferences were on other topics and 3% included more than one topic.

Videoconferencing Connects People and Locations

The videoconferences connect people and groups from many different locations. The content analysis found that 44% of the videoconferences connected six to 10 sites; 28% connected three to five sites; 15% connected more than 10 sites; 9% had less than 10 sites, with the exact number unknown; 3% connected two sites, and one videoconference, a training video, had only one site.

Generally, the videoconferences connect sites in one province but some are inter-provincial or international. The analysis of the geographic range of the sites participating in the videoconferences found that 73% connected sites in the same province; 16% connected sites which included two provinces; 7% connected sites in three or more provinces; 1% included international sites; and 3% had an unknown range of sites.

Videoconferences connect groups of all sizes. The content analysis found that 66% of the videoconferences had more than 10 participants; 14% had six to 10 participants; 14% had less than 10, with the exact number unknown; 5% had three to five participants, and the training video had only one participant.

The content analysis found that women are actively using videoconferencing in First Nations. In 48% of the videoconferences, the gender ratio could not be determined by viewing the archives. However, where the ratio could be determined, 36% of the videoconferences had more women than men participating; 7% had more men than women participating; 5% had only women participating; 2% had only men participating; and 2% had an equal number of women and men participating. In at least 90% of the videoconferences, at least one woman contributed to the discussion. Overall, the analysis of the gender ratio

suggests that videoconferencing is used more often and more actively by women.

The Organizations Support the Production of Online Videos for Community Development

The second content analysis was conducted on a random sample of the 203 online videos located on the K-Net and Atlantic Help Desk servers. The analysis found that the main purpose of the online videos (80%) was a resource for learning related to personal, professional or community development. This finding suggests videos are used primarily for the same purposes as are videoconferences. In addition, 11% of the online videos documented a community event and 9% had other purposes.

The online videos address a wide range of topics. 29% of the videos focused on community or economic development. 11% of the videos was focused on education and learning. For 10%, the main topic was culture and language. For 2%, it was health and wellness. 38% of the videos addressed more than one of these topics and 11% addressed other topics. Many of the videos (42%) discussed information technology or broadband development as part of a broader discussion of another topic.

Unlike videoconferences, more males than females were portrayed in the videos. In 38% of the online videos, the gender ratio of human characters was unknown or not applicable. In 30% of the videos, the human characters were all male; in 11%, they were all female; in 8%, there were more males than females; in 7%, there were more females than males; and in 6%, an equal number of females and males were portrayed. In half the videos (50%),at least one woman spoke.

The interviews with the key informants found that both organizations have supported the growth of community video production through training programs, workshops and seminars.

The Organizations See Themselves as Supporting First Nation Development Goals

Migrating broadband, building local technical capacity and promoting local control and adaptation of ICTs are seen as the core missions of both organizations. All respondents identified the need to support community development goals. While economic development is crucial for local sustainability, all respondents said each First Nation community is unique and each must set its own goals.

"I think more people have to be more open-minded in regards to all our cultures. Even though we're all First Nations, we all have a different way of seeing things, and we have different perspectives and different goals." (Membertou First Nation staff member)

An ongoing challenge for both organizations is navigating the fine line between supporting communities in the adoption of broadband while not directing the use of it. Many respondents emphasized the need to build capacity in communities by providing advice and assistance.

"The "we'll look after you" attitude is not a positive one in terms of the development of infrastructure, or resources, or people in the communities. I guess we're about as guilty of it as most, sometimes, without even knowing it. Like me, quite often, I'll find it easier to do something myself remotely than to go through the process of explaining to someone how to do it themselves. I'm trying to wean myself away from that. The biggest thing that's got to change is the "We'll look after you." That's the first thing that's got to change, whether it be from government or from industry or whatever; that's got to change first." (K-Net staff member)

"The Help Desk would … lend that helping hand. They don't do it for the community, but they say here are the steps and we're going to help you, and give you the support that you need in that way." (Membertou First Nation staff member)

The staff and associates of the organizations understand the need for broadband infrastructure as a key component of community development. Each organization supports community-based broadband solutions in principle and in telecommunications specifically. K-Net, in particular, champions community-based broadband infrastructure in remote First Nations' communities.

"There's always a cost to bring in broadband. The costs are high, higher than urban centres closer to the main cities. So we have the ability to obtain funding and decrease the actual community cost so the service becomes affordable. And, in turn, what we encourage is building the community to own that broadband connection, to turn it into their own ISP - Internet service provider. And then, in turn, make that a business case and allow them to perhaps hire. And then becoming self-sustaining of that network, of their own network that they own, and they can bring in more applications." (K-Net staff member)

The Organizations Work Regularly with First Nations and Outside Organizations

As their contacts, networks and activities expand, both organizations raise awareness to outsiders, with respect to the issues facing First Nations, the need for community-based solutions to local challenges.

Both work with a range of First Nation and Aboriginal organizations, locally, regionally and nationally. Each network works together with other First Nations SchoolNet RMOs to advance common goals. The organizations work with local, provincial and federal governments as well as colleges and universities. Each forge partnerships in both the private and public sectors.

K-Net and the Atlantic Help Desk promote videoconferencing as a means to communicate and build stronger relationships with its partners.

"We are always encouraging our partners to use the videoconferencing, not only with us, with our office, but with our community members. It's evolving; it's a process. We'd like to do more… The nature of the videoconference, being able to see the person and hear them, provides for an accelerated method of relationship-building. So when First Nations communities and other partners get to meet and see each other on video, it does work in building relationships after." (K-Net staff member"

The Organizations Recognize the Need for More Widespread Changes in First Nations' and Canadian Society

All the key informants identified policy change on many different levels if communities are to attain self-determination. Respondents said First Nations' communities must become the agents of social change. In many communities, there is a big resistance to change. Respondents stressed that change cannot be forced from the outside but must be initiated at the local level. Within and among First Nation communities, people have to work together better to move forward.

Interview respondents identified the need for federal and provincial governments to develop a stronger mandate to support First Nation community development as a component of self-sufficiency and growth. More government staff should be living locally, not flying in from major urban centres for short visits. More government funding is needed to harness community champions and to support communities to reach their development goals. More public investment is needed in public works,

education and skills development to improve the relationship between First Nations and governments. Several interview respondents identified the federal *Indian Act* as having a major detrimental impact on First Nation community development.

Interview respondents said that more non-Aboriginal people and communities need to come forward to work with the First Nations, and be willing and interested to work with them. Canadians need to see a more positive image of First Nations and have a fuller perception of First Nations' culture. Publicly-funded anti-racism activities are needed on a national level. Several respondents said the mainstream Canadian media needs to provide more information about First Nation issues because Canadians are uninformed and unaware of the situation of their First Nation neighbour communities. Urban Canadians need to understand that the rural lifestyle is legitimate and that subsistence living is a viable alternative to mass consumption and a materialistic lifestyle.

Summary and Conclusions

K-Net and the Atlantic Help Desk support the use of broadband video communications for community development by the remote and rural First Nations on their networks.

The two organizations actively support videoconferencing in First Nations. K-Net supports about 1,000 videoconferences a year in addition to telehealth sessions, and the Atlantic Help Desk supports about 150 videoconferences a year. The communities are using videoconferencing to conserve financial and human resources and allow participation in events that may otherwise not be possible due to time and travel constraints. The videoconferencing provides more access to region-wide activities, and it promotes interaction between sites and groups that may not have connected previously.

Videoconferencing fosters many community development initiatives. The videoconferences are primarily for interactive learning, related to personal, professional or community development, for meetings and for community get-togethers. The main topics of the videoconferences are health and wellness, education and learning, culture and language, information and communication technology, and economic and community development.

Videoconferencing connects a variety of people and locations. Most of the videoconferences occur in the same province but many are connecting to sites within two or more provinces, or even internationally. Most of the

videoconferences connect more than 10 participants, and women are actively using videoconferencing.

The communities are using online video to share their stories with each other, with other First Nation communities, and with the wider world. Both K-Net and the Atlantic Help Desk have supported the production of online videos through training programs, and both are hosting online videos on their servers made by First Nations' community members. Similar to the videoconferences, the online videos are mainly used as a resource for learning related to personal, professional or community development. A third of the videos address topics related to community and economic development.

The organizations support First Nations' community development, recognizing that economic development is a priority for all First Nations and that each has its own community development goals. They recognize the need to provide technology to the communities, fostered by a community-based technology development model.

Both organizations have a strong awareness of the issues facing their First Nations' communities and the need to foster community-based solutions to broadband diffusion and community challenges. They work with many different First Nation organizations, governments, universities and commercial organizations. As their network of contacts expands, they foster awareness in their partners and contacts of the importance of community-based solutions. Whenever possible, they use videoconferencing to communicate with their partners and contacts, and they encourage them to use videoconferencing with the communities on their networks.

The organizations recognize the need for more widespread changes in First Nations and Canadian society in order for First Nations to reach their community development goals. Changes are needed in First Nations and governments and at the level of individual Canadians.

Clearly, the two organizations are actors in the broader social movement, working toward self-determination for First Nations in Canada. Their specific role in the context of this research supports the use of visual technologies - videoconferencing and online video - by First Nations to foster their community development goals. The two organizations are providing opportunities for the communities to use their networks and technologies - originally developed to deliver telehealth and distance education - for a wide range of other community development activities.

Acknowledgements

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