Attitudes Toward and Use of Video Communications
By Educators in First Nation Schools in Atlantic Canada

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Background

Information and communication technologies (ICT) contribute to community, social and economic change and development. The term "ICT" refers to a wide range of digital technologies – from cell phones and email to digital radio and television – that people use to communicate and share information. One category of ICT is video communications – exchanging audio-visual data using broadband networks. People use video communications when they want to include a visual element in their communication or information exchange. Examples include videoconferencing with people in one or many distant locations, sending videos by cellphone, video chat on the Internet, watching videos on YouTube and other video-sharing websites, and making videos to share.

The types of video communications with the most potential for First Nations schools and communities are videoconferencing and sharing videos online.

Videoconferencing is the live exchange of audio and visual information on broadband networks. Videoconferencing using high-quality equipment and managed networks allows groups of people (such as a class of students or group of teachers) to communicate visually in real-time with other groups. Multi-site videoconferencing connects groups in multiple locations. Having the visual component allows sharing rich information such as facial expressions, body language and background settings that help those at a distance to build trust and familiarity. Visual communications is also very useful for showing objects such as artwork and school projects as well as demonstrating how to do something.

Indian and Northern Affairs Canada (INAC) supports the First Nation School Net program. The program funds six First Nation Regional Management Organizations (RMOs) to develop and support the use of ICT in First Nation schools and communities across Canada. The First Nation School Net RMOs support many videoconferences and multi-site videoconferences between and among teachers and students in First Nation communities.

The RMOs also provide training for teachers in making videos and sharing them online. In the past few years, RMOs have supported the production of numerous videos by and for teachers and students on topics of interest to First Nation students. Making videos and sharing videos online offers First Nation students and teachers the opportunity to showcase their activities, issues, activities, schools and communities. After the videos are online they can be appreciated by a large audience of people watching via the Internet.

Introduction

This study is part of a larger research project exploring the use of video communications for community, social and economic development in remote and rural First Nations in Canada. Our research is focused on sharing videos online and multi-site videoconferencing in Atlantic Canada and Northern Ontario. These two regions of the country are serviced by our research partners, Atlantic Canada's First Nation Help Desk and K-Net. Both these organizations are RMOs in the First Nations School Net program.

To date our project has published research papers describing how video communications are being used by these two organizations for community development (O'Donnell et al, 2007) and the challenges for video communications in remote and rural First Nations communities (O'Donnell, Perley and Simms, forthcoming in 2008).

The purpose of this current study was to investigate the use of video communications by educators and other staff working in First Nations schools in Atlantic Canada. In this region of the country, First Nations schools are generally the only location in the communities with equipment and access to networks for videoconferencing.

We collected the data for the study during an ICT Symposium organized by the Atlantic Helpdesk in October 2007. The approximately 50 participants at the ICT Symposium were staff members at First Nations schools across the Atlantic region. At the event, 43 participants completed our questionnaire, responding to questions about their technology use, making videos and sharing them online and using

multi-site videoconferencing, and providing feedback on the symposium event.

Profile of Survey Participants

Of the 43 participants, 51% were male and 49% were female. All worked in First Nation schools and 84% identified themselves as educators. For 70%, English was their first language and for 26% it was an Aboriginal language. Ninety-eight percent of participants reported that, in general, they liked working with computers.

Current use of Video Communication Technologies

Participants reported the video technologies they personally use and the frequency with which they use them. Using a digital camera for taking photographs was the most frequently used technology with 52% of participants reporting doing so several times a week or more. (See Chart) Watching videos online was the second most frequently used technology - 37% of participants reported doing this several times a week or more. Using a webcam and computer-based video chat were the next most popular technologies. Twenty-seven percent and 26% of participants reported using these forms of technology every week or more, respectively.

Posting a text comment to an online video was the least frequently reported technology used: 76% of participants stated they never or rarely did so. (See Chart 2) Video editing on a computer and videoconferencing with three or more other sites were the next least popular technologies used with 65% and 62% of participants reporting never or rarely engaging in these activities, respectively.

The results of univariate ANOVAs indicate that men engage in the following forms of technology significantly more than women: using a digital camera for shooting videos ($F (1, 41) = 8.84$, $p <.01$); doing video editing on computer, ($F (1, 41) = 15.15$, $p <.01$); using a webcam on computer, ($F (1, 41) = 10.69$, $p <.01$); watching videos online ($F (1, 41) = 10.86$, $p <.01$); videoconferencing with one other site, ($F (1, 41) = 8.37$, $p <.01$) and videoconferencing with three or more other sites ($F (1, 41) = 9.80$, $p <.01$) Also, men reported posting a text comment to an online video significantly more than women ($F (1, 41) = 5.20$, $p<.05$).

Similar analytical procedures indicated that participants whose first language was English were more likely than those whose first language was an Aboriginal language to: use a webcam on a computer ($F (1, 39) = 8.13$, $p <.01$); watch an online video ($F (1, 39) = 5.21$, $p <.05$); videoconference with one other site ($F (1, 39) = 4.19$, $p <.05$); and videoconference with three or more other sites ($F (1, 39) = 4.31$, $p <.05$).

Making Videos and Sharing Them Online

Sixty-four percent of participants reported that making a video and putting it online would be easy for them. Eighty-six percent reported that making a video and putting it online would benefit their school or their community and would be useful in their job as an educator. Ninety- one percent reported that making a video and putting it online would be a valuable learning experience for students.

Interestingly, despite the overwhelmingly positive responses about the ease and usefulness of making videos and putting them online, only 47% of participants said they intended to make a video and put it online during the current school year. Participants reported not being comfortable with the technology and being "a private person" as reasons why they did not intend to make a video during the current school year.

When asked what would help them to make a video and share it online, participants overwhelmingly asked for a seminar or hands-on, practical training. Many participants also asked for online information, specifically step by step help, FAQs (frequently asked questions), a troubleshooting guide, sample videos with information, student activities on subject presentations, story-based templates and small lesson plans with tips.

Cross-tabs and Chi Square analyses were used to determine whether intent to use video or participate in a multi-site videoconferencing session during the current school year varied as a function of gender or first language. Analyses indicated that men were significantly more likely than women to report an intention to make a video and put it online during the current school year (64% and 29% respectively)

$\chi^2(1, N = 43) = 0.02$, $p < .05$. Regarding first language, there were no significant differences among participants whose first language was English compared to those whose first language was an Aboriginal language in their intention to make a video and put it online during the current school year ($\chi^2 (1, N = 41) = .94$, $p < 0.95$, $p > .05$).

Using Multi-site Videoconferencing

Of the participants, 77% reported that using videoconferencing equipment would be easy for them. Ninety-five percent agreed a multi-site videoconference would benefit their school and 84% agreed that it would benefit their community. Eighty-four percent reported that a multi-site videoconference with other schools would be useful in their job as an educator and 98% indicated that a multi-site videoconference would be a valuable learning experience for students.

Similarly, despite the overwhelmingly positive response to the use and usefulness of multi-site videoconferencing, when questioned about their intention to use multi-site videoconferencing in the current school year only 57% of respondents indicated they intended to use multi-site videoconferencing to connect their students with students in other schools. Many participants reported not knowing how to use videoconferencing technology as the reason they did not intend to use multi-site videoconferencing in their classrooms during the current school year.

When asked what would encourage or support their use of the technology, respondents indicated having more training or having a qualified person in the school setting to support teachers would help them to videoconference. Many also asked for a website with FAQs (frequently asked questions), a troubleshooting guide, an instruction e-book, a how-to video, and information on what other schools are doing with videoconferencing.

There were no significant gender differences in men's and women's intent to use multi-site videoconferencing to connect students with students in other schools (68% and 48% respectively), $\chi^2(1, N = 43) = 0.17$, $p > .05$. Similarly, there were no significant differences among participants whose first language was English compared to those whose first language was an Aboriginal language in their intention to use multi-site videoconferencing to connect students with students in other schools ($\chi^2(1, N = 41) = 0.73$, $p > .05$).

Atlantic ICT Symposium Feedback

In the final section of the questionnaire participants were asked for their feedback on the symposium and their thoughts on future events to support the use of ICT in First Nations schools. Ninety-five percent indicated the session was a good way to collaborate or build common perspectives with educators from other schools. All participants indicated that they would talk with others at their school about the things they learned during the session and 81% indicated that the session had encouraged them to think differently about sharing videos online and videoconferencing.

Summary and Conclusions

We conducted a survey of educators and other staff in First Nations schools in Atlantic Canada to understand their attitudes toward and use of video communications. Almost all the survey respondents reported they liked working with computers.

As would be expected of computer-users, the participants use a range of video communications technologies in their lives. However they reported low levels of use of the video technologies with the most potential benefits for First Nations schools – videoconferencing, multi-site videoconferencing and uploading a video to share with others. This finding indicates that videoconferencing and sharing videos online are more of a challenge to use than other types of video communications, even by users who like working with computers. As well, women and those with an Aboriginal language as their first language reported lower overall levels of use of video communication technologies.

Participants had overwhelmingly positive perceptions of the value of sharing videos online. Almost all believed that making a video and putting it online would benefit their school and community, would be useful in their job as an educator and a valuable learning experience for students. However

less than half the participants intended to make a video and put it online in the upcoming school year. As well, fewer women than men intended to do this.

Similarly, participants had extremely positive perceptions about the value of multi-site videoconferencing: almost all believed that a multi-site videoconference would benefit their school and community and would be useful in their job as an educator and a valuable learning experience for students. Again, however, only slightly more than half intended to use multi-site videoconferencing to connect their students with students in other schools during the upcoming school year.

The study findings indicate that educators in First Nations schools in the Atlantic region do recognize the benefits of multi-site videoconferencing and sharing online videos for themselves, their students, their schools and their communities. However clearly they will need more support and resources to use these video communication technologies to realize those benefits.

It is important to point out that the educators we surveyed are people who like working with computers. In many cases they are the school staff members who provide computer advice and support to other teachers.

The findings strongly suggest that more hands-on support and training are needed in the schools. At first this effort could focus on the lead IT staff people in the schools, who could pass on their expertise to the other teachers.

Training materials and delivery should include examples and address a variety of interests that appeal to both women and men. More online resources need to be developed and made available to educators with specific how-to information about how these technologies can be used in First Nations classrooms.

In addition to support in the schools, the study also identified that future events like the ICT Symposium are required for educators to share and learn from each other in a supportive setting. In future, events should include hands-on training in multi-site videoconferencing and sharing online videos.

Methods

Participants were 43 people of approximately 50 who attended the Atlantic Information and Communication Technologies Symposium organized for staff of First Nations schools by the Atlantic Helpdesk in October 2007. The day-long event was held in two locations connected by videoconference: Burnt Church First Nation in New Brunswick and Membertou First Nation in Nova Scotia. Before completing the questionnaire, participants experienced presentations and demonstrations of sharing videos online and videoconferencing as part of the ICT Symposium.

Respondents were asked to complete a short questionnaire regarding their technology use and their perceptions of making online videos and using multi-site videoconferencing. They also provided feedback on the session they attended.

The first section of the questionnaire contained demographic information such as gender, profession and first language. Also, participants were asked to rate how frequently they used 11 video communication technologies on a Likert-type scale with five points: never or rarely, every month or so, every week or so, several times a week and everyday.

The second and third section of the questionnaire pertained to participants' perceptions of making videos and putting them online and using multi-site videoconferencing. Participants responded on Likert-type scales with five points: strongly agree, somewhat agree, not sure/ neutral, somewhat disagree, strongly disagree. Further, following each response, participants were encouraged to explain their responses in an open format section.

The final section of the questionnaire asked participants to give feedback on the session they had participated in during the day and ideas for future videoconferencing events.

Completing the questionnaire took about 10 minutes. The questionnaire was anonymous - respondents were not required to put their names on the survey. The study was approved by the National Research Council Research Ethics Board and followed ethical guidelines for research.
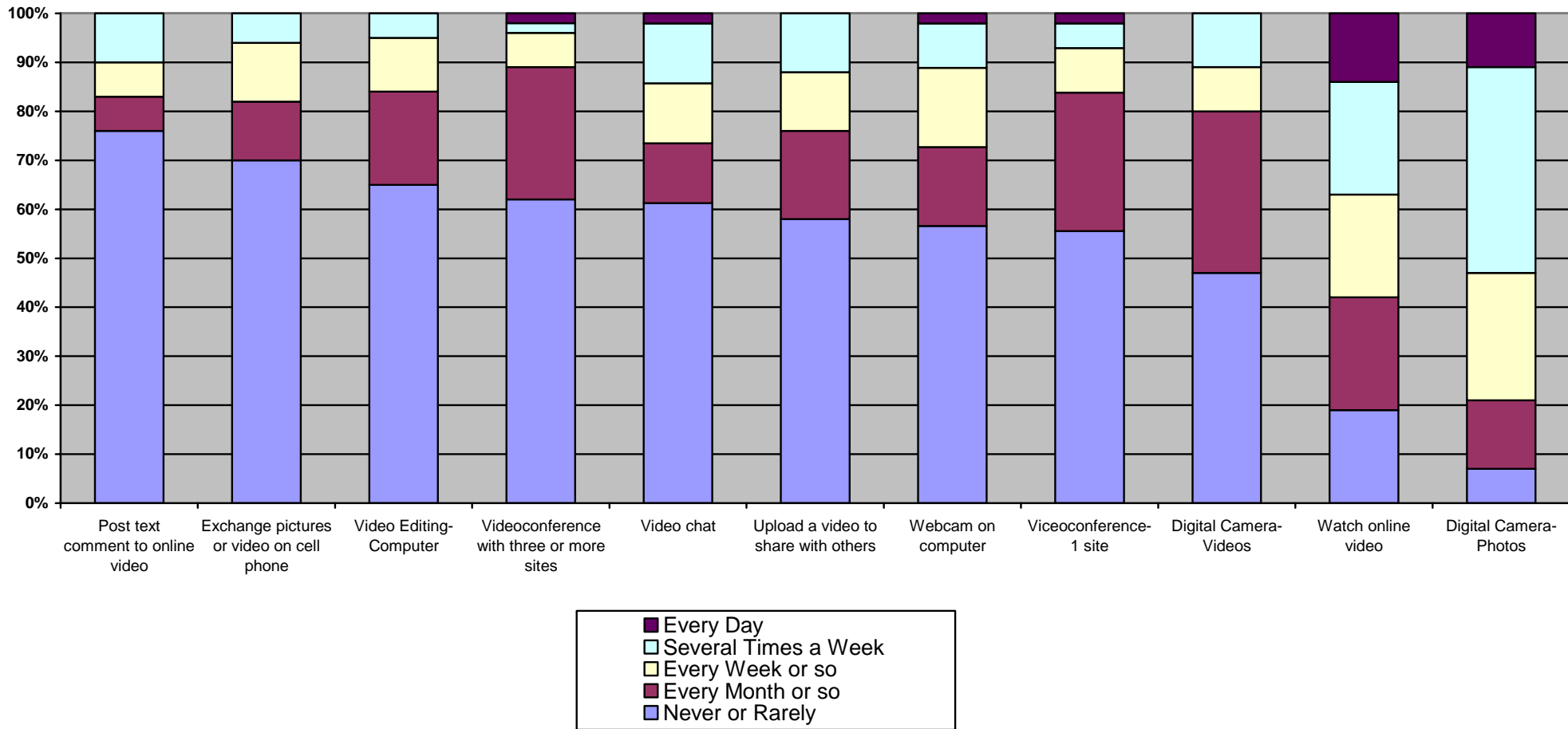
References

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O'Donnell, S., Perley, S., Walmark, B., Burton, K., Beaton, B., & Sark, A. (2007). *Community-based broadband organizations and video communications for remote and rural First Nations in Canada.* Proceedings of the Community Informatics Research Network (CIRN 2007), Prato, Italy, November.

Frequency of Technology Use

Legend:
- Every Day
- Several Times a Week
- Every Week or so
- Every Month or so
- Never or Rarely

Categories (x-axis):
Post text comment to online video; Exchange pictures or video on cell phone; Video Editing-Computer; Videoconference with three or more sites; Video chat; Upload a video to share with others; Webcam on computer; Viceoconference-1 site; Digital Camera-Videos; Watch online video; Digital Camera-Photos

Report Information