



HARNESSING ICTS: A CANADIAN FIRST NATIONS EXPERIENCE

K-NET CASE STUDY ON EDUCATION

Written by Helen Aitkin, Rebekah Jamieson,
Ricardo Ramírez and Don Richardson
Graphic Design by Brunel Design
Artist: Tim Tait
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INTRODUCTION

The remote location and small populations of the Keewaytinook Okimakanak (KO) communities are a challenge to the provision of basic education services. The need to improve local access to such services has helped drive the development of K-Net's broadband technologies and appropriate educational applications, such as the Keewaytinook Internet High School, online Grade 8 supplementary courses, online tutorials, an Online Training Centre, and other services for these small, fly-in communities of northern Ontario.

Until recently, in order to continue their education after Grade 8, KO children were forced to leave their families and communities to attend secondary schools hundreds of kilometres away. For many young people, this involved major culture shock and a loss of social support, and often resulted in students quitting school. Many First Nations parents and grandparents are still reluctant to send their children to high school in other communities because of the devastating experiences they faced in Indian Residential Schools. According to former Grand Chief of the Assembly of First Nations, Matthew Coon Come, this state-sponsored system amounted to genocide: "Basically, the goal was to take the Indian out of the Indian," he says.¹

"Kids were leaving the community at a very young age. I went out when I was 12 years old. It was very difficult. A lot of our kids were dropping out because of cultural shock, homesickness. We wanted to keep them longer in the communities so they could mature before they go out. We've always been a part of the land. It was the biggest thing I missed when I went out to school."

– George Kakekaspan, Special Projects Coordinator

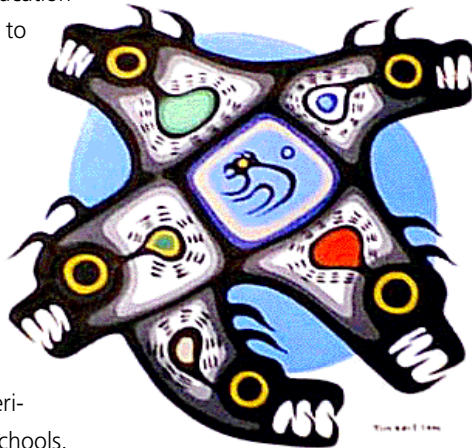
KEEWAYTINOOK INTERNET HIGH SCHOOL (KIHS)

In 2000, KO began an experiment to pave the way for what has become a model of innovation in distance-education. Driven by community need, individual commitment, and persistence in overcoming technological and financial challenges, the Keewaytinook Internet High School (KiHS) pilot project was launched. This pilot project linked 36 Grade 8 students in Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill. Students were based in a local classroom setting in each of the communities with their own teacher-

mentor. The students also interacted online with each other and with a Native Studies instructor who was based 2,000 kilometres away in Kingston, Ontario.

The KiHS project faced numerous challenges. At the beginning, bandwidth and Internet connection speeds were slow. Some of

the communities did not even have telephones when the pilot started. As well, teachers had no previous experience in this method of mentoring students in a local classroom while also acting as a subject specialist/instructor to students in the other distant communities. A curriculum for high school distance-education appropriate for remote First Nations learners still had to be developed. And because computers and the Internet were fairly new technologies being introduced as key learning tools, both the students and teachers had a lot to learn.



¹ Indian Residential Schools Survivors Society: History <http://www.prsp.bc.ca/history.html>

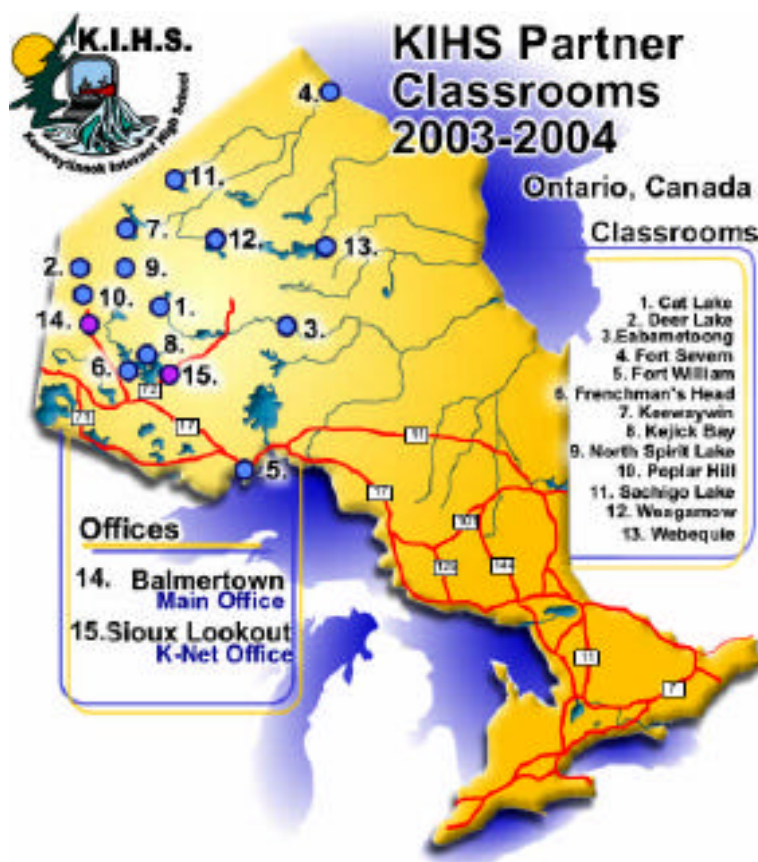


The KiHS pilot project proved that the model could work, and that there is a viable alternative to the disruptive, painful and often futile option of flying students away to residential schools. With financial assistance from the Federal Economic Development Initiative for Northern Ontario (FedNor) and Industry Canada's Smart Communities Demonstration Project in 2001, and with the increasing participation of other First Nations communities, KiHS has evolved and developed the necessary technical infrastructure, curriculum, and institutional support for a successful distance-education facility.

down south, and they have a choice to stay a little longer in the communities with their parents."

– Matthew Kakekaspan, Chief Executive Officer

Much of the driving force behind the ongoing development of KiHS has been a strong community commitment to keeping young people at home while starting high school. There is a strong consensus among the KO residents that young people need to remain with their families and in their communities as long as possible to help them mature and establish life skills. Youth are often unprepared socially and psychologically to succeed at high school in an unfamiliar setting far from their family and friends. In addition, ties to their unique culture, language and the land itself can be strengthened by keeping young people closer to the community for a longer time.



"We had a young man who decided to stay in the community when KiHS first started. He stayed in the community because he hunts almost every day. It gives him the opportunity to stay behind... in the community an extra two years. He was able to go school, and also go out on the land after school, which is a good thing."

– Madeleine Stoney, e-Centre Manager

The project funders, too, recognized the negative impacts of flying such young people out to residential schools, and supported the commitment of project organizers and community members to build a local solution through KiHS.

"You wanted to have an Internet high school to keep the kids in the communities rather than having them fly out. From here, the closest high school is about 700km away. So some kid 14 years old would have to fly that far and board in school. It just doesn't work very well."

– Carl Seibel, FedNor

By the fall of 2003, KiHS included classrooms in thirteen northern communities, with a full selection of twenty Grade 9 and 10 courses. Students attend school for six hours per day, working on one course in the morning and another in the afternoon. Their lessons are available online and accessible anytime after school.

"The KiHS service that KO sponsors is probably one of the best things that's happened to this community. It's helping those students who are unable to stay in school





Philosophy of KiHS

Our youth need the opportunity to continue strengthening their family and community bonds as well as their linguistic and cultural knowledge, while completing their secondary school education at home. Secondary school course delivery via telecommunications will capitalize on the technological capabilities of the participating First Nations to ensure that our youth fully utilize their potential, and that of the technology available to us in the twenty-first century. Source: <http://kihs.knet.ca>

When KO youth finally do leave their communities to finish high school or pursue post-secondary education, the communication tools facilitated by the K-Net network provide an opportunity for students to stay in close contact with their family and friends back home using email, chat or videoconferencing. These tools enrich the lives of both the students and their parents who can continue to offer support and guidance when their children are away for long periods of time.

"We had a couple of parents that were at the clinic, and we made arrangements for them to see their children that was studying at Pelican Falls, and they visited, I'm not even sure how long – for over an hour. It was something that they enjoyed. They were able to see their own child, using the video equipment that we had set up in our community..." – Darlene Rae, e-Centre Manager



KO students working online from their local classroom

GROWTH AND EXPANSION

The success of KiHS has drawn the keen attention of other First Nations communities facing the same challenges of educating their youth beyond Grade 8. From the start, the K-Net organizers were committed to extending the "Smart" experience to other First Nations communities. At the beginning of 2002, KiHS made a formal invitation to other communities to establish their own KiHS classroom, offering fully accredited Grade 9 and 10 courses. To participate, a community must provide a building or space that can serve as a KiHS classroom. They must also have a teacher-mentor with local accommodations and support resources to instruct one subject area over the Internet and serve as a mentor to the students in the community classroom.

Keewaytinook Okimakanak has started Keewaytinook Internet High School because the Chiefs know that KiHS is needed and "do-able".

The chiefs also know that the best community high school program will allow students to be in touch with their peers from many northern communities, and will include expert teachers in many subject areas.

The chiefs of Keewaytinook Okimakanak are saying, "Let's share a good thing"

Join us in creating a positive and meaningful high school experience for our leaders of tomorrow. Become a partner community in KiHS.

KiHS Brochure: <http://kihs.knet.ca/brochure.html>

Support has been provided by Industry Canada's FedNor program to upgrade a school's Internet connection, and from K-Net Services to assess the technical needs and help complete the application. Indian and Northern Affairs is a partner, too, providing funding to KiHS to deliver the program, and to communities for classroom operation and maintenance. In December 2002, the minister of Indian and Northern Affairs announced a five-year pilot project status for KiHS (See <http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=411>).

"Now after four years, their grammar has improved dramatically for the English language and they can keyboard without even looking at the keyboard. They're really fast and it's one of the things they've picked up. They can do a lot more stuff than I can, and they're only ten to fourteen years old."

– George Kakekaspan, Special Projects Coordinator



FIRST NATIONS SCHOOLNET

Since the late 1990s, Industry Canada has been supporting and promoting the use of ICTs in Canadian elementary and secondary schools through a program called SchoolNet. The First Nations component of the program, First Nations SchoolNet (<http://www.schoolnet.ca/aboriginal>) has the additional mandate of providing Internet connectivity and computer hardware assistance to participating schools. KO has been the northern Ontario SchoolNet help-desk since 1996, and this expanded to cover all of Ontario in January of 2002.

In October 2002, K-Net won the bid for providing technical assistance and help-desk services to First Nations schools as one of the Regional Management Organizations (RMO) for an expanded SchoolNet program. The selection of K-Net was based on its previous SchoolNet experiences, its success in building, sustaining and expanding the KiHS, and its commitment to increasing educational opportunities for First Nations and remote communities. In February 2003, the First Nations SchoolNet program provided special one-time funds for K-Net to develop a national IP (Internet Protocol) videoconferencing network connecting the six First Nations RMOs sites across Canada.

As the Ontario RMO, K-Net provides assistance to schools to help them overcome their connectivity and hardware challenges, in addition to help-desk services for troubleshooting local area network and connectivity problems. The first steps to providing these services are completion of a survey of school needs, and signing a Memorandum Agreement between the school and K-Net. Three other special projects included in this SchoolNet work include:

- ▼ supporting the development of the First Nation schools portal service at <http://firstnationschools.ca>;
- ▼ the videoconferencing pilot project which will add at least 15 more FN schools across Ontario to the Kuh-ne-nah network; and
- ▼ an online content development initiative with six First Nation organizations across Ontario.

One example of the content development initiative under the First Nations SchoolNet RMO program is the "G8 Program" (<http://www.g8.firstnationschools.ca>). The main goal of this initiative is to provide supplementary courses to Grade 8 students in First Nations communities. Schools that choose to participate in G8 gain access to complete supplementary courses, including all lessons, tests and course materials, provided online in Science, Math and English. Similar to the KiHS schools, the G8 schools must be able to provide each student with access to a computer with a high-speed Internet connection, which K-Net can assist with as well, both in terms of technical assistance and advice on securing funding. Students must be able to spend one hour per day completing assignments on their computers. Teachers must be in place to oversee students. Early feedback has shown that students in isolated communities value the ability to reach out and learn with people outside through their Internet-supported courses.² Teachers appreciate the access to online course materials that enrich their curriculum.

All First Nations schools can receive a free email account through K-Net and create their own homepage on the Internet using open-source web-building tools.

Kuh-ne-nah's National IP Video Conference Network in First Nation Organizations



² Full pilot project evaluation report is available online at <http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=594>



"When the Smart project started, we equipped each classroom with a computer. They had two computers in each classroom as well as a printer. We established a computer lab at the school, so all the kids right from K4 were able to use the computer. I think they picked up their computer skills quite easily... I would say most of the students at the school now have web pages, where they're also picking up web design skills - they're able to use those frequently."

– Madeleine Stoney, e-Centre Manager

network technical skills development training sessions have been delivered for several years with funding support from the Sioux Lookout Area Aboriginal Management Board.

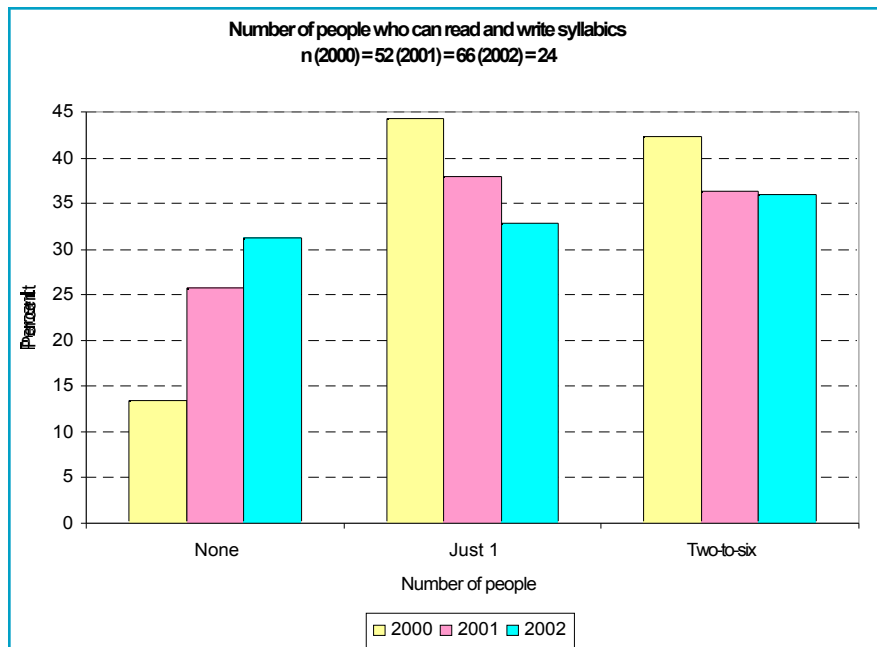
"You can do research on a computer. If you want to know anything about stress, you just press stress.com. It'll give you information, links for where else to go for information on stress... Anything you want to know, you can get it from the Internet."

– Lawrence Mason, Mental Health Coordinator

EDUCATION FOR THE ENTIRE COMMUNITY

While young students have benefited from programs formulated to help them learn, access resources, and communicate with other learners and instructors outside their communities, it is not just the youth who have discovered the educational potential of the Internet through K-Net. People of all ages in the KO communities have become adept at using the Internet for informal and formal education to enhance their personal and professional lives. Formal training sessions have been developed and delivered using the KO e-learning platform to create an online training centre at <http://training.knet.ca>. Computer and

Mental health practitioners have discovered that they can search the Internet for advice, insights and information that they can apply quickly and efficiently to assist them in their work. Primary health workers have found much needed information on nutrition, diabetes prevention and prenatal care, as well as a myriad of other topic areas to support the effective delivery of their programs. Individuals have researched new hunting and trapping equipment, eco-tourism opportunities, and ways to sell their art or handicrafts. Research is a function of the Internet that has quickly become valued as a benefit of connectivity, and those with an enquiring mind have adopted the technology with a passion.





Preservation and renewal of the indigenous language, Oji-Cree, is important to people in the KO communities. Most can speak and understand the language, though reading and writing the language is not as common. K-Net has developed online multi-media tools to help build a repository of Oji-Cree vocabulary and script, known as "syllabics," along with audio files of the spoken language. On-going project monitoring has tracked community knowledge of literacy in Oji-Cree and noted an increased competency in Fort Severn.

"I think that having syllabics online, and teaching others that don't know how to speak their language, or write their language...I speak it, but I don't know how to write it or read it. So it would be a benefit for me if I could just take something online to teach myself how to write this stuff."

– Madeleine Stoney, e-Centre Manager



videoconferencing equipment which are essential tools for the telehealth and telepsychiatry program. Teachers and students have gained familiarity with computers and the Internet, both for KiHS and at the elementary level.

For the most part, young people have acquired computer skills effortlessly, and in many cases, they have been mentors to older people.

"One of the biggest obstacles I have is computer skills because I never really worked on computers before. But I'm very lucky in that capacity because my daughter and my friend's daughter have been able to help me with it. They're more like my teachers on the computer. At work, I'm being trained on the stethoscope for the heart – I'm still not up to it. It's computerized, too; you have to work with a computer. I'm not very comfortable with a computer. I'm scared I might make a mistake and whatever I'm going to send over there is going to be all mumble jumble". – Julie Meekis, Telehealth Coordinator

NEW TOOLS, NEW SKILLS

Local capacity-building in computer and Internet skills presented a challenge for people in the K-Net communities at the outset, though both formal and non-formal training have provided solutions. E-Centre managers received formal training in computer use, networking, installation and maintenance, as well as general program management. Multi-media producers learned web-building, digital photography, and communication techniques. Technicians were trained to ensure that the telehealth, education and cable-to-home services run efficiently. In 2003, the e-Centre staff and other community members received training in video production to enable them to capture stories of the impact of the Smart Community initiatives and other activities in their communities.

Health practitioners required technical training to enable them to operate the sophisticated remote diagnostic and

K-Net has been committed to facilitating the rapid adoption of Internet technology. To this end, they have conducted workshops, and provided one-on-one mentoring and online training tools to the communities. Through the K-Net website, users can learn Internet basics, as well as computer design and website production. Simple-to-use

online tools allow users to create personal websites, which has enabled over 8,000 K-Net subscribers to build their own websites on "MyKnet.org". This has become one of the most popular functions of the Internet throughout KO and other First Nations communities.





"Everything falls into the computer. My job involves computers – everything I do. We have Internet access, we have homepages; we have a new homepage that we are making right now. Basically we're just teaching ourselves and training ourselves to understand these new tools that are being brought to us."

– David McKay, Multi-media Coordinator

DIRECTING THE FUTURE

"We have a new medical school [Northern Ontario Medical School (NOMS)³] that's going to be a virtual medical school, and the emphasis is going to be on rural medicine, training doctors to practice in these rural sectors. That's because the infrastructure exists. This type of medical school has never been built and developed. It tears down a lot of these walls and makes it possible for institutions to reach out and be part of the community, instead of always having people leaving to participate in an institutional environment."

– Brian Beaton, K-Net Services Coordinator

K-Net's technologies allow people in KO communities to participate in government programs, university courses, and new initiatives like NOMS in a more equitable and timely manner. By improving access to ICTs, K-Net is having significant impacts on the education of remote First Nations communities. Community members are actively harnessing the information and communication tools available to them, feeling empowered to both influence and be influenced by what they are learning on the Internet, in chat rooms, and at their local e-Centre. They are educating themselves while also sharing their own cultural heritage and traditions with a global community. Young people are staying in their communities longer but being given the same communication skills and information as urban students. K-Net offers a tool to help people direct their own development, and in this case, the people themselves are deciding where and how to apply this technology for everyone's benefit.



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For further information, please contact the artist:

Tim Tait, 405 York Street, Thunder Bay, Ontario, Canada P7A 7S1

Tel.: 807-768-7899 – <http://arts.knet.ca/artists/ttait/info.html>

³ A new medical school for the whole of Northern Ontario, the Northern Ontario Medical School (NOMS) is a joint venture of Laurentian University, Sudbury and Lakehead University, Thunder Bay. With main campuses in Thunder Bay and Sudbury, NOMS will have multiple teaching and research sites distributed across Northern Ontario, including large and small communities. NOMS will contribute to improving health outcomes in Northern Ontario <http://www.normed.ca>

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The six First Nation artists kindly agreed to support the use of their copyrighted art work to be included in this publication. They include Kevin Belmore, Derek Harper, Abe Kakepetum, Tim Tait, Alice Williams and Saul Williams. Their contact information is included at the end of each section of the document.