Ktunaxa Community Learning Centres: Unique Community Perspectives on the Development of Health Education

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Abstract

The Ktunaxa Community Learning Centres (KCLC) project, a community-university partnership, was funded by the Canadian Institute of Health Research from 2006–2009. KCLCs were developed in three First Nations communities and aimed to provide community members with a physical and online space to access culturally relevant health education. Community leads collaborated with community members and university partners to coordinate KCLC development, and each KCLC evolved into a unique community resource that operated dynamically and according to various community factors. The current article presents four case studies, written from the point of view of community and university research and technology leads who worked on the KCLC project. Each lead discusses their self-perceived role in the project, successes and challenges they experienced throughout, and future goals and directions for the learning centres. This article is intended to illustrate the unique approaches that the KCLCs have been used and valued in their community from the point of view of those on the ground during their development.

Key Words: University-community partnerships; community-based research; health education; technology; community health

Introduction

The current article presents the development, implementation, and evaluation of a health education program implemented in three First Nations communities from the perspectives of the community- and university-based project leads. This health education program, titled the Ktunaxa Community Learning Centres (KCLC) project was a community-university partnership funded by the Canadian Institute of Health Research from 2006–2009.[1] The rationale for the KCLC project stemmed from the well-established disparate health outcomes for Aboriginal and non-Aboriginal people in Canada combined with the recognition that Aboriginal health is an umbrella term that encompasses more than just health care delivery and the straightforward provision of health services (Loppie Reading and Wien, 2009). The overall goal of the KCLC project was to collaboratively develop three learning centres that were each designed by and for community members, providing communities with health education and resources specific to community-defined health priorities. The current article presents the descriptive case studies of the learning centres, illustrating the unique approaches that each learning centre has used and valued in their community.

Community Learning Centres Defined

Community Learning Centres (CLCs) are part of a community-based educational intervention to improve access to health education and resources. Having access to health information that addresses culturally relevant definitions of health is important for Aboriginal people to build capacity in addressing their own health needs (Blueprint for Aboriginal Health, 2005). A CLC includes both a physical space with computers, and an online portal with culturally appropriate health information and resources. The goal of a CLC is to recognize the unique contexts specific to individual communities, and to engage community members and community-based health professionals in the design of the CLC space and web-

site. This fosters community ownership and involvement in determining appropriate health concerns and educational resources to address those concerns. Originating in 2001 in Mexico's Tecnologico de Monterey (Monterrey Tech), the CLC concept was established to bring health information to residents of geographically isolated regions of Mexico, suffering from a paucity of health care providers and services. The concept was then piloted in 2005 in British Columbia's Tl'azt'en Nation to understand how information and communication technologies could be integrated into an Aboriginal community to provide otherwise inaccessible access to health education (Jarvis-Selinger et al., 2008; Jarvis-Selinger et al., 2009). Lessons learned from the Tl'azt'en CLC were used to plan the development and implementation of three CLCs in British Columbia's Ktunaxa Nation (Jarvis-Selinger et al., 2009).

The KCLC Project

The three communities profiled in this article are located in the traditional territories of the Ktunaxa Nation in the southeast corner of British Columbia, Canada. In 2006, the UBC eHealth Strategy Office partnered with the Ktunaxa Nation and successfully obtained a three-year grant from the Canadian Institutes of Health Research. The eHealth Strategy Office is a self-funded research group in UBC's
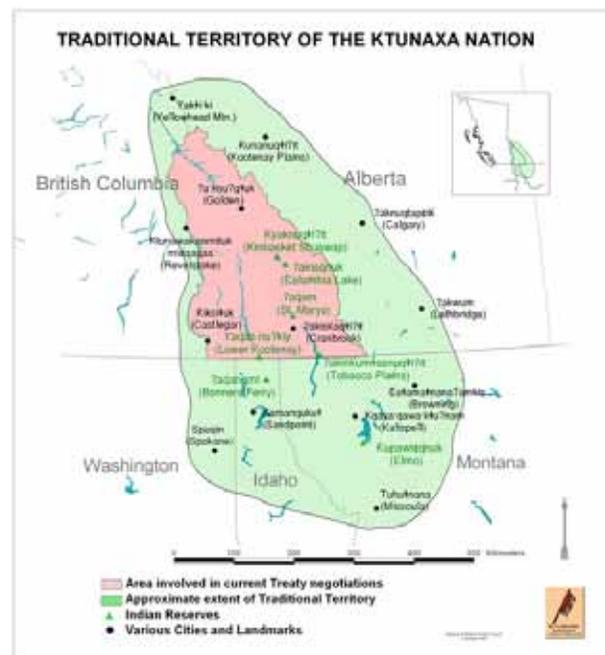
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Faculty of Medicine; its mission is to carry out research, community engagement, and educational activities that explore how modern information and communication technologies can improve health.

The KCLC project followed a Community-based Participatory Research (CBPR) approach. CBPR is a collaborative orientation to research that involves community members and researchers as partners in all stages of the research (Minkler and Vallerstein, 2011; Cornwall and Jewkes, 1995). CBPR approaches have the potential to reduce health disparities because they are grounded in community collaboration and capacity building that benefits participants (Israel et al., 2005). The CBPR approach was illustrated in the KCLC in the collaborative nature between community and university partners in codeveloping the learning centres in the community-driven health education content. In addition to CBPR principles, the principles of Ownership, Control, Access, Possession were relied on throughout all research activities (First Nations Centre, 2007). The study was approved by the University of British Columbia's Behavioural Research Ethics Board (H07-03122).

The majority of project funding supported the hiring, training, and ongoing mentoring of one evaluation lead and one technical lead within each community to coordinate the activities of each KCLC. These community leads received mentorship and guidance from the University of British Columbia research and technical team as they developed their capacity to be providers and facilitators of health information to their community.

The *community evaluation leads* learned how to conduct research in their own community by identifying health priorities, and then using these priorities as a starting point to develop culturally relevant health content or workshops based on community-identified needs. Evaluation leads also completed data collection with community members throughout the project timeframe to assess their KCLC's effectiveness in reaching the community.

The *community technology leads* learned how to maintain and update KCLC equipment and online health information. Technology leads also supported community members as they navigated KCLC technology. The university and community team members met regularly to deal with administrative tasks, problem-solve, collaborate on education and training events, share information, and guide the direction of each KCLC.

The development of the KCLCs during and after the funding period was unique to each community context. The current article presents the creation, implementation, and evaluation of each KCLC as case studies. Each case study is described from the perspective of the community- and university-based leads who collaborated with community members and university partners to coordinate the KCLCs. Therefore, each case is written in the first person, providing insight into the various community and personnel factors that gave each KCLC a unique identity as a community-based, health education resource. Within each journey, the KCLC community and university leads describe their self-perceived role in the project, the successes and challenges they experienced throughout the project, and future goals and directions for each learning centre.[2]

The CLC at Lower Kootenay

Introduction

Lower Kootenay or Yaqan Nu?kiy *(pronounced Ya-can Noo-chi)* has 212 registered members, 90 of whom live on reserve (Indian and Northern Affairs Canada [INAC], 2010). Lisa Jimmie worked in the Lower Kootenay CLC as the evaluation lead for the majority of the project. Unlike the other two CLC communities, Lower Kootenay was unable to identify a community-based technical lead to coordinate the CLC technological and equipment. Nigel Warden, the technical lead in the Aq'am CLC, provided Lisa with technology support through community visits and remote assistance. Lisa was the only consistent and long-term Lower Kootenay CLC staff member and describes her experience below. As will become apparent, Lisa's own technology skills and online literacy developed significantly over time, and she shared these skills with other community members.

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2. While one evaluation lead and one technical lead were originally hired to coordinate each KCLC, there were several instances of KCLC staff turnover. The current case studies are presented by those leads who were involved in the KCLC project for some length — some throughout the entire three-year project.

Lisa Jimmie, Research Lead

My name is Lisa Jimmie, I'm 30 years old, and I started working on the Lower Kootenay band CLC in the fall of 2007. The learning centre website[3] was created to keep the community informed with health topics, healthy recipes, upcoming events, profiles of the CLC team, UBC team, and contact information. Our CLC was located in the basement of the Yellow House, which also contained the daycare and health staff. There were eight computers in the CLC. I felt like I was in a unique position, since the project had already started before I came on board. When I joined the KCLC team, the person on the project before me helped by giving me the information they had already researched, along with the names and phone numbers of people that worked on the project and a schedule of phone conferences. That made it easier for the transition to take place. My job title was the Lower Kootenay CLC Research Lead. There were two positions for each community, the research lead and technical lead. Since there was no technical lead when I first started my role as the research lead, I was approached by UBC about the possibility of holding both jobs. I was a little nervous at first but since I was interested in computer technology, I gave it a chance. One obstacle that I faced right off the start was being the only one here and not knowing a lot about computers. Being a visual learner it's easier to show me how to do things so being on my own was a challenge. It was made easier by having the technical lead from Aq'am teach me about remote assistance. This method helped me do

some of the technical things and it was a wonderful experience to be able to work hands-on and to be able to use the computers at the CLC.

As a research lead, I led the creation of health articles on various health topics that were said to be important by the community members. The top three health priorities in the community were cancer, diabetes, and healthy living (e.g., exercise and nutrition). I mainly used computers and the Internet to do this research and gather information on these health topics. I would also go out into the community and collect data from community members in order to gather information on various topics. After I collected this data, I worked with the UBC team to write health education articles, and I sent the completed information to the technical lead, who made the articles available on the CLC websites. I also included information that was culturally relevant, such as traditional recipes and information on community-based workshops.

Successes experienced

During the time I spent on this project I learned a lot. It took a little bit of planning but we had a web design workshop in the winter of 2008. This was a very good workshop. We learned how to do web layouts, web pages, and various web designs. It was difficult at first, not knowing a whole lot about computers. It took a little practice to get used to using codes for layouts, colours, inserting pictures, headings, paragraphs, fonts, especially because everyone at the workshop was at a different stage of computer knowledge. However, once the workshop instructor showed a few examples of how to use different codes, it got easier. The instructor did a wonderful job. For some it would be refreshing for others, like me, it was a new topic for learning.

Throughout the project we kept in close contact with the crew from UBC on a weekly basis. When I first started on the project I was involved with one-on-one teleconferences with the university researcher. After the CLCs were up and running, we started doing group teleconferences with the rest of the CLC leads from the other bands. We stuck with this method after finding it was most effective. More recently, we started getting into more technical means of communication through Web-Ex and

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3.   The Lower Kootenay CLC can be found at www.lowerkootenay.com/clc.

Skype. With these programs along with the use of headphones and web cams, we were able to see and hear each other. This was a great learning experience and made the weekly meetings more enjoyable.

As part of the research, we worked as a team to create interviews and questionnaires for our communities which were meant to keep track of the CLCs and how they were benefiting the communities. It was a great way to stay in contact and bring the community together. It also brought the leads from each CLC closer together to work as a team.

Challenges faced

Overall, learning the technical lead skills was my biggest challenge. Right from the start, one obstacle I faced was being the only one at the Lower Kootenay CLC, and not knowing a lot about computers. Nigel and I started working together when we were hooking up the computers for the grand opening on February 5th, 2008. That was a good way to start, just by setting up the computers. After that we had more one-on-one sessions. He would come to the CLC and teach me how to maintain the computers. For example, he showed me how to: update the anti-virus software: remove viruses: install the Ktunaxa language on the keyboards; fix printer problems and connect the printer to all computers; set the time; and add and remove various programs. Nigel also taught me about web design software (i.e., Dreamweaver). He went through how to use the templates for the website and I worked on the CLC website it in order to practice what I had learned. I started by adding links on the website. It was a good experience to learn how to make website updates and also it was easier having him right here. Since Nigel couldn't be here all the time we started using remote assistance so we were both able to have control over my computer and he could continue teaching me about maintaining the computers. In addition, we kept in contact using MSN Messenger as I had a lot of questions about computers. Using Messenger I learned how to send files and receive them using web links. I would save conversations and print them.

Future directions

One thing I want to work on is encouraging our community to be more involved. I want our people to feel comfortable enough to try out new technology. There seems to be pretty valid reasons why I've had a hard time to get people to come to the CLC. Some people are intimidated by computers and are uncomfortable working on them. Some of these people feel better knowing that there's someone here to help them. Other people have their own computers in their homes. For these people I would like them to know about the website and let them know that their input is important as well. I've worked on a plan to get people here and get their input at the same time. I'd like to have a questionnaire put up on the website to get feedback about the CLC and small prizes for their valuable input.

The CLC at Aq'am

Introduction

The Aq'am CLC (pronounced Ah-kahm) has 352 registered band members, 192 of whom live on reserve (INAC, 2010). The Aq'am CLC is the most centrally located and has the largest number of community members within the Ktunaxa Nation. For most of the project, the CLC was staffed by an evaluation and technical lead. Midway through the project, the evaluation lead left her position and therefore her story is not reflected in this article.

Nigel Warden was hired as the original technical lead and maintained his position for the duration of the project. In fact, throughout the project, Nigel continued to undertake training and developed his skills to the extent that he became an expert in IT and acted as a resource for other KCLC technical leads. He was also hired by the Nation IT department as a permanent staff member. As evidenced by Lisa's story, Nigel emerged as a mentor and expert in the KCLC project. Below, Nigel presents the unique journey of the Aq'am CLC and touches on both evaluation and technical aspects of its development.

Nigel Warden, Community Technical Lead

My name is Nigel Warden. I first became employed by St. Mary's Indian Band (Aq'am) in 2006, when I was 26 years old. I primarily fulfilled an IT role for the staff and offices here. The Aq'am CLC was housed in a small trailer in the centre of the clus-

ter of office buildings across from the St. Eugene's Mission Resort. Inside there were 10 computers arranged tightly against the walls of a small room just big enough to accommodate. When I started I didn't know what the CLC project was all about. For a while, I basically just participated in the weekly meetings, answered emails, and jumped through hoops as they came up. For quite a long time, it seemed like there wasn't a whole lot of enthusiasm for this in myself and in my supervisors and even from the UBC leads at times — possibly because there was no solid direction yet. Obviously, there were plans already drawn up regarding milestones, overall goals, and what the project would include. For example, we knew that we wanted to create a computer lab environment, a health content related website, and a community engagement plan to determine what content the community would like to see on the website.

The CLC technical lead's main responsibility was to design and maintain the CLC website[4] and equipment, a job that definitely picked up as the project went on. Right from the start I knew my role was to create a website, so I looked to my previous amateur experience in web design. I started creating the website from scratch using techniques that I knew were part of the standard practice of web development such as sketching a layout and making initial decisions about the technologies to use. I collaborated with the UBC leads about what sections would appear and threw ideas around about how those sections might be presented. It took me a while to write the initial framework on the website, because I started from scratch. I installed a Linux web

server on a spare computer, which was a fun technical exercise and learning experience. By the time I had that sorted out, the Adobe Dreamweaver license that UBC provided at my request arrived and I began writing the raw code in the PHP/HTML/CSS/JavaScript languages. Having no formal education in web design, it was kind of directionless, with a lot of unnecessary micromanaging and debugging code. I didn't realize this until the Ktunaxa Nation Council's communications guru said that I was trying to reinvent the wheel, and showed me better ways to use Dreamweaver. He taught me that Dreamweaver had many features built right into it — especially hierarchical template schemes — where every page on the site was cloned from a template and every template was based on another template above it. This was mind-blowing to me, and I began applying this concept to my web development — searching for and using well-established tools, and essentially trusting the software.

The web development continued and I started collaborating with the research lead on ideas for site content. One of the first pages we worked on was the traditional native plants page. I started creating the templates and ideas for the sections and we scheduled a nature walk hosted by a community member who knew some things about traditional plants, such as how to identify them and some of the traditional uses. I brought along my digital camera and we took notes based on the bits of information we heard. We organized the notes into sections that explained what the plants are good for, how they might be dangerous or how they were used traditionally by Ktunaxa people. We got back to the office and the research lead matched her notes to my photos and we put the information on the website. A screenshot of the website featuring one of the plants and the community knowledge associated with it can be seen below.

From then on, the content development of the site followed that same pattern with the other pages. The research lead began to develop research articles on important health topics identified by the community from start to finish. It was a process, starting from choosing a health priority, researching it, writing an article with key information and resources

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4.   The Aq'am CLC can be found at www.aqam.net/clc.

relevant to our community, and working with me to update it on the website. We eventually ended up with health articles on a number of topics, including: addictions, diabetes, depression, hepatitis C, HIV, and HPV. Increasing the variety of information available on the CLC meant that over time the site has seen many visual and technical upgrades and my skills have increased tenfold. It's a steep learning curve and you have to keep up with new technology and feedback from the community. Things really started to fall into place when the computer lab portion was opened and ready for the community. This involved installing and configuring Windows XP for about 50 computers that were intended for all of the CLCs in the Ktunaxa Nation. After the launch, the site design and functionality was always improved upon, with plans for more improvements continuously being developed.

Successes experienced

One of the major successes of the CLC was holding various health and technology workshops. Health professionals or experts in the field would lead workshops with community members about: cancer prevention, career cruising, job readiness, resume writing, Ktunaxa language typing, music recording, web design, and data analysis. The job readiness workshop hosted by one of Ktunaxa's employment officers had a large turnout, and the web design workshop for all CLC staff was also very useful to the project team. I found the music technology workshop to be personally the most exciting workshop. It was directed towards youth, and it seemed that anyone who heard

about it wanted to help or be a part of it. The goal was to attract people with local music skills and talent and have them bring their own equipment in order to show the "newbies" how to use technology in music recording and also just to share our ideas and skills. The idea quickly gained a lot of support from the Aq'am's staff, the CLC leads and external groups. There was a very surprising turnout from the youth in the community. Some may have been truly interested in learning about making music, and some may have just gone to see Rex Smallboy talk.[5] By the end of the workshop, we had sparked the interest of several youth who were eager to attend future music workshops and also generated a lot of interest and awareness of the CLC. The best thing about the workshops was that they enabled community members to get their hands dirty with technology.

The other primary success of our CLC is that the community is regularly using it. We have at least one person using the CLC every day. Students frequently come to check their email, do homework, and even ask for help with their homework. Sometimes youth just come in to chat about things. One of our community Elders is visually impaired and comes in to the CLC to use the computers. JAWS, a screen reader program, allowed him to browse websites and use his email with ease. Software programs such as JAWS and others are installed based on specific community needs, and helps people feel supported when they use the CLCs.

Another success of our CLC is that it has helped preserve the Ktunaxa language. With our language being an isolate,[6] preservation and education through generations is critical to its survival. The CLC was able to help this process by translating the site content into Ktunaxa, hosting Ktunaxa keyboard workshops, and delivering an online course from the local college titled "Introduction to Ktunaxa." To help students take this course, I designed a Ktunaxa Keyboard Inlay, which acts as a handy reference sheet to go with the old font and the alt-code refer-

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5. Since the 1990s, Rex Smallboy has been actively involved in the shaping and development of the Canadian Native Rap Music Scene. He played a essential part in pioneering the market for positive Native rap music concerts and workshops bringing entertainment and empowerment to First Nations communities all across Canada.

6. An isolate is a language unrelated to any other known languages. Isolates often carry unique traits unseen in other languages and are a priority for language revitalization efforts and linguistic study.

ence people sometimes have taped to their monitors or desks. This keyboard inlay can be folded and trimmed to fit snugly in the gap above the top numbers row for desktops or laptops.

Challenges faced

Although the CLC eventually had regular users, when it first opened, it was hard getting people to even be aware of the CLC and what it could be used for. It seemed that communications about the CLC to the community weren't reaching the audience that we thought we were targeting. There were lots of ideas for workshops that could be delivered but many of them didn't happen. We may have underestimated the amount of advertising and planning that was required to put on a successful workshop. Limited funding for promotional materials didn't help, and even when the research lead came up with a creative strategy to fund promotional materials and snacks and beverages, having only a small number of participants made it difficult to sustain motivation to put on any other workshops.

I think we also had trouble fleshing out a complete, big-picture plan for the CLC, and instead our focus was largely on getting the word out about the CLC's presence. When I say presence, I don't just mean having people aware of the CLC, or even getting them to come here, but to have them identify their interests, which could then drive the CLC's identity. That's the key factor that's going to bring them back, that's what's going to keep them around, and that's what's going to make them care. Things got a little easier and started to pick up in the summer when school was out and students hung around the area, and discovered that there was a place that they could come and use Facebook, You Tube, and talk to each other. It didn't matter what we were bringing them in for and maybe we didn't always have to sell the idea of workshops and learning about health information. The way people were going to know about the CLC and eventually see value in it was simply by spreading the word, and I think that was the key to attracting the youth. That's when we shifted focus from delivering empty workshops, to going out into the community online and in person to tell people about the CLC. Simply saying "you should come check it out" was a way to reach out to the community, even if the programming wasn't necessarily health or traditional learning related.

A final challenge was the difficulty keeping up with technology. Having someone on hand with technical capacity in each CLC was a big undertaking. This person didn't necessarily need extensive experience, but at least needed to have the basic knowledge to begin fixing the challenges that came up in everyday IT life. Someone needed to continually improve the equipment in the CLCs, as hardware limitations were quite obvious when you actually sat down to use one of the computers. Even after updating the computers through *Computers for Schools,* they were still the bare minimum of what was needed to run Windows XP "comfortably." It was rewarding but also quite challenging to realize that there is a large social component to IT work. For example, knowing and gauging what technical level someone was at, and adjusting my attitude, language, and delivery in order to strike a balance between not doing things for them and not going way over their heads came up almost daily. I've learned through the KCLC project that being an IT worker is actually very closely related to being a teacher.

Future directions

If you asked a lot of people "how would you feel if the CLC was gone?" I think a lot of people would say they would feel at a loss. Even if they didn't use it, they knew someone who made good use of it. It would be nice if the CLC continued to be a part of the community in the future, because it has computers, a lending library, it's free and accessible.

The CLC at Akisq'nuk

Introduction

The Akisq'nuk community has 261 registered band members, 113 of whom live on reserve (INAC, 2010). James White was hired as the technical lead at the beginning of the project in 2006. He set up the space and the equipment and never hesitated to teach CLC users about the technology. Brandy Joe took on the evaluation lead position about mid-way through the program.

James White, Technical Lead

Brandy Joe, Research Lead

My name is James, I'm 63 years old and have been working on the CLC in Akisq'nuk since 2006. The CLC[7] is located in the Akisq'nuk First Nation building basement and began set-up in September of 2007. The hours of operation were set from 1:00 PM–5:00 PM, Monday to Thursday. Friday was set to 10:00 AM–2:30 PM. The CLC was closed on Saturdays, Sundays, and holidays. In setting up the CLC, first all of the computers to be used by the CLC were prepared. Because these computers did not have the current software and hardware this took several weeks. Initially, we did not have an evaluation lead on board and taking on the task of both the technical and the evaluation lead made progress slow and sometimes discouraging. Gathering content for the CLC was truly an uplifting task. To see and hear different ideas from community members helped the CLC progress. The CLC launch date was on May 21, 2008. In attendance that day were a UBC team representative, a Council member and members of the local Akisq'nuk First Nation.

Surveys were conducted and all the information gathered was prioritized and used on the CLCs website. Community members, young and older, made visits to use the CLC. In 2008 one community member — Brandy Joe — showed interest in helping and taking on the role of the evaluation lead. Together, Brandy and I set the goal of creating a new web page for the CLC. CLC staff consisted of one evaluation lead, one technical lead, with an appointed supervisor for most of the project timeframe. Weekly communications were done using the Internet, phone, and post. The physical space previously housed different educational projects, but none of them lasted as long as the CLC. A lot of upgrades were completed over time, and physical accessibility upgrades were always in the works. As the technical lead, I coordinated the CLC web design and provided support to community members who accessed the CLC.

I'm Brandy Joe from Akis'nuk and I was 24 years old when I became involved in the CLC. In September of 2008, while taking an online course called IC3 (Internet and computing core certification), I started coming to the CLC on a regular basis to use the high speed Internet connection. The course was a 20 week program in which I spent a minimum of 20 hours a week in the CLC working on my course gaining knowledge in computers and the CLC itself. In January 2009 my 20-week IC3 course was completed and I had received my certificate, at which point I was very familiar with how the CLC was run and I smoothly transitioned from the IC3 course to becoming an employee of the CLC. My hands-on technical skills were put to the test by James, including introductory computer hardware and software maintenance procedures. James and I took apart a computer as he explained each component and we built it back up together again.

After some basic technical training, my role with the CLC was the research evaluation lead. My involvement with the CLC consisted of research and study, which was put toward articles that focused on issues of importance in our communities such as health information and awareness. I was also in charge of coming up with new ways to reach out

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7.   The Akisq'nuk CLC can be found at http://akisqnuk.org/clc/.

to people through the CLC, whether it was through writing interesting articles, planning workshops, or just talking to people. I believe my role was really about trying to make people aware about our activities and issues that need to be addressed. I feel it was not only about raising awareness of certain issues, but trying to change certain things as well. For me it was "seeing what there was to change, and to change it; seeing what there was to address and address it."

Successes experienced

When the CLC project started, more than 50% of homes in our community did not have a computer, and those that did were limited in that they didn't have high-speed connection. This made the CLC a good, safe, reliable, and comfortable place to come to. As some health issues could be too embarrassing to talk about face-to-face with community-based health professionals, individuals felt more comfortable choosing technological information solutions to answer their questions. To accommodate this, I researched easy and informative web sites to link into the CLC. Community members also came in to use the CLC for researching, resume building, and editing using different applications. Students' computer literacy varied, some were more experienced and were comfortable using the computer and its applications. Other community members were first time computer users and went through a quick and easy introduction. Typing was always a difficulty with some, so online and CD keyboarding lessons were used. Questions on where to find information, how to search on the Internet, and the safety of websites were answered by the attending technical lead or other experienced CLC users. Two of the CLC computers were not connected to the Internet to help beginners learn how to use a computer and these computers also contained some beginning information on the Ktunaxa language and traditions. Using these "offline" computers helped beginners move to the online Ktunaxa language information and practice working "live" on the Internet.

The CLC had an especially positive effect on the kids in our community. Elementary school students accessed the CLC daily after school, some just playing games, while others used this time to finish homework, research labs, or spend time on social websites. Computer usage was not limited to just doing resumes, emails, etc. Downloading and uploading photos, music, and activating phones, iPods, mp3s, cameras, and other devices taught them more and more about technology. The more advanced students mentored other community members who were new to technology. Just having the CLC open when the kids got off the school bus gave them a place where they could go which was fun and social, rather than them just going home and being bored, made the CLC an important place in the community.

We were successful in creating CLC website content relevant to health concerns that were identified in surveys conducted with a wide age range in our community. Three top issues identified were about addictions, cancer, and diabetes. Information from interviews, family gatherings, and workshops was used to research different web sites which were published on the CLC website. The evaluation lead headed all these tasks and the technical lead did the editing before publishing the information. A big article I put a lot of time and research into was about mental health, specifically, suicide. Suicide is a common cause of death in First Nation's communities yet the issue is rarely addressed and is instead "swept under the rug" and ignored. This is an example of an article that helped with the healing process, provided resources, and helped people identify the warning signs to prevent future suicides.[8]

As the evaluation lead, the most positive aspect of my involvement with the KCLC project was making a difference in the community by voicing my thoughts and opinions. The music technology workshop that we had, for example, was the best experience I had with the CLC because it was a personal thing for me. I helped with promoting the event, creating posters, sending out emails, talking to people about it, and so on. I even approached a musician whom I saw as a very positive role model and asked him to come to the workshop to share his success and struggle stories and a few words of inspiration with the youth about music and life goals. It was a start of positive change in the community

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8. The article on suicide prevention can be found here: http://akisqnuk. org/clc/suicide.html

— as with many youth in general, finding our voice and our identity is very hard. For some this struggle turns them toward drugs, alcohol, violence, promiscuity, and other negative activities to fill that void. Writing, making music, rapping, or singing was just a small way youth in our communities could express themselves. Any form of venting or self-expression was helpful in growing and moving forward. Music has personally helped me a lot in my life, and I wanted it to do the same for other people. And it did help some of the people who went to that workshop, especially those who listened to Rex Smallboy (the workshop instructor) and what he said about his own life, talking about his experiences and giving us inspirational, motivational speeches. I think the youth got a lot out of the workshop and continued to use the things that they learned. Since the workshop, youth continue to use the CLC and the music equipment on a regular basis with regular Friday night jam/recording sessions. This has kept the youth busy so they are not going out to the parties and getting themselves into trouble.

Challenges faced

The biggest challenge with our CLC was its location. We were in the basement of the band administration office, down a million stairs. As far as how these challenges affected the project, if we were in a better location, more Elders would use the facilities. Additionally, other community members didn't know about its existence because it was downstairs. For about a year, I didn't even know the CLC was there. I was told to call James White because I had some computer problems and when I arrived at the band office, I was told to go down to the CLC. Changing to a location more noticeable and accessible for Elders and people with disabilities would increase CLC impact. Elders of the community approached the new technology with some quiet apprehension. Those that used the CLC once did not return because of the access entrances, not because they were not interested.

Another main challenge was that a lot of people had ideas about to improve the CLC, but putting those ideas into action was sometimes difficult. For example, we tried to hear everybody's concern; like when we spoke to community members they all had their own ideas about what the CLC should be and, as CLC staff, sometimes we were limited in being able to address these things. Some ideas were beyond our control due to budgetary constraints or just having too many ideas for too short a timeline. The project budget covered our wages but there wasn't much set aside for workshops and activities. We had be creative in finding ways to get people interested in ways that didn't involve big events. So while everybody had their own hopes and needs, we weren't always able to meet every one of those because sometimes it would have taken too much time or too much funding.

Creating momentum for a new community program was sometimes difficult, and it was hard to engage many people in the community. Sometimes I thought that pride stopped people from coming in because they didn't know how to use a computer and they were ashamed about that. A lot of older people who got on the computer and realized they didn't know what they're doing, thought that they should somehow "know," and it shamed them to have their kids typing fast and knowing more than their parents. A lot of the time people didn't come in for that reason — they'd rather not face that humiliation. I couldn't go to every house and tell them about the CLC, but if somebody in each family spoke to at least one other relative, the word would have spread about the CLC. As CLC staff, I had to become more social in order for people to feel comfortable coming to us. That was part of our job. It was difficult because some people would rather just stay at home all day, sleep, and play video games, because to get up, get dressed, and get ready for the world was sometimes a lot. A lot of people have problems with being social. For example, a lot of people around here are family, but sometimes I meet people that I never heard of before.

Future directions

One direction we always strove towards was to encourage more involvement from our own communities, and specifically the band administration staff located upstairs from the CLC. Since their offices were upstairs and we were in the basement, they had no idea what we did in the CLC. If they knew more about what we were doing, we could have teamed

up and done a lot more. I know everyone was busy doing their own thing, but they probably personally had their ideas, opinions, and concerns, and it would help to be aware of them. For example, collaborating with other departments in the Akisq'nuk administration brought forward the idea to use the CLC for its original purpose and to also include in it a space for language and traditional knowledge.

We also wanted to make more educational courses accessible through the CLC. Essentially, people wanted to see more happen with the CLC that involved them; they wanted to see courses that women could take, men could take, they wanted the CLC to be accessible to everybody, all ages, and all abilities. Some community members requested certain certificate courses (e.g., trades, hairstyling, cooking courses, etc.).

Moving forward, I wanted to see the CLC continue and get better. I didn't want it to just get smaller and die off, I wanted to see it grow bigger and have a future. And I hope to see it here a couple years from now as it continues to get better. I think we strove for a perfect CLC. The perfect CLC would involve everybody, doing what they want to do, being happy, and just having everything that they need. I wanted it to be there for them. Having it in a nice sunny place where the sun could shine in the windows — that would be close to a perfect CLC. The development of the CLC was successful; otherwise we wouldn't have seen kids in there every day. We started from pretty much nothing to something very beneficial and useful to a lot of people. People who had health concerns used the CLC to find information. Each time somebody logged onto the website, it became more proof that someone acknowledged us, that what we were doing was good.

The University Lead

Katherine Wisener, UBC Lead

Hi everyone, my name is Katherine Wisener and I became the university research lead for the KCLC project when I was 24. At the time I was a new employee at the eHealth Strategy Office and the KCLC project was my first opportunity to become involved in a university-community partnership. I was eager to be involved in such an exciting initiative! As the

community-based research and technical leads coordinated the on-the-ground implementation of three CLCs in their communities, my role was to provide support and guidance throughout this process. This involved setting regular working meetings to set goals, problem-solve, collaborate, plan events and workshops, and guide the project evaluation. I acted as the liaison between the community leads and the larger UBC and Ktunaxa team who guided the big-picture project goals (e.g., principal investigators).

Successes experienced
The largest success of the project for me was the process of turning a concept into reality. We began the project with the vague goal of developing a physical gathering space in First Nations communities and an online web resource that provided community members and staff with health education and resources. Beyond this we didn't know exactly what each CLC would look like, where they would be housed, and if they would be a valued community resource. This lack of clarity early in the project was intentional and consistent with the CBPR approach we followed — we wanted the CLC identities to develop organically, based on community health priorities, input, and interests. It was amazing to be a part of a dedicated group who took a promising idea and made it reality. The end result was three collaboratively built CLCs that housed computers,

hosted health and education workshops, and provided accessible online health articles and resources (e.g., traditional nutrition information, community events). Most importantly, community members actively used the CLCs! Playing a role in the CLC development and seeing the impact was the most meaningful success for me.

Another project success was the meaningful relationships that emerged between myself and the community leads. Developing relationships across geographical distances can be challenging. The other UBC team members had travelled to the communities in the initial community engagement phase. I became involved just after this, so I met with the community leads once a week over teleconference. Even though I found this difficult at first, after a couple of meetings it became easy to collaborate, work through issues that came up as a team, encourage peoples' ideas, and come up with plans to achieve them. Once the leads were on my MSN and Facebook accounts, we began to use those social networking tools to communicate in a more informal and "as needed" way. Eventually, we acquired WebEx, a videoconferencing web-based tool that allowed us to meet "visually" — as close to face-to-face as we could get. Transitioning towards web-enabled tools really supported us in meeting our goals, working together as a team, and developing ongoing friendships.

Another success was to see the community leads build their capacity as community leaders. There are examples that stand out in my mind. For example, Lisa began the project with a strong enthusiasm for working with technology but not a strong skill set. During our work together, Nigel and myself worked with Lisa to teach her the technology in the learning centres. Lisa soon became confident enough in her skills to teach CLC users about technology. At the Akisq'nuk CLC, Brandy was personally affected by a suicide in the community. She took her pain from that experience and wrote a suicide prevention article that was posted to the CLC to help others. James, a Ktunaxa speaker, password protected each CLC computer with a word in Ktunaxa and used that as an opportunity to teach youth in his community their traditional language. Nigel suggested music as a healthy outlet of expression for youth in the com-

munity and turned this notion into a very successful music recording workshop that was highly valued. These examples and more are illustrated in the above case studies. For me the notable thing about them is that each had a positive effect on the CLC leads in developing their leadership roles which led to increased pride and ownership of the CLCs. This commitment, dedication, and leadership inspired other community members to value the CLCs.

A final notable success was my own development as a researcher in a community-university context. I quickly learned that my previous experience in leading research projects did not necessarily transfer to the KCLC project. For example, scheduling formal meetings with agendas and the expectation that the meeting begins and ends exactly on schedule worked for other projects, but did not necessarily fit with KCLC. I really learned how to be more flexible and understanding towards different ways of approaching research. If there's a death in the community, you need to respect the community's way of coping, which may mean that everything closes down for several days. There were many examples of things that I learned throughout the project and I think it's made me a more understanding, respectful, and flexible person, both professionally and personally.

Challenges faced

I experienced several challenges as well. When I first became involved as the university lead, my role was to provide research support to the leads as they coordinated CLCs and conducted research with community members. What I didn't know was that I would also have to be a strong motivator for the leads. I came on board just as the CLCs were "going live." There was quite a build up to this launch and the community-university partners were extremely excited about the achievements to that point. Unbeknownst to us, it would take a little bit longer for the community itself to feel the momentum. The leads were somewhat let down that the community wasn't as excited as we were. I knew that it would take some patience and encouragement to foster and support positive attitudes and this quickly became a part of my job description. There was a real chal-

lenge in getting the community to access the CLCs right after they opened, which led to the "launch excitement" dissipating. As a more introverted laid back personality, it was a learning curve for me to become a positive, enthusiastic team member but I knew that's what I had to do.

Another challenge was adapting to changing timelines. We had originally proposed to CIHR that it would take six months for the CLCs to be developed; in reality, we were still navigating the community engagement process after six months. For me this was a major challenge because I had to reconcile the strong, authentic community engagement with the externally imposed timeline of the project funders. Since this was a three year funded project, many of the milestones were difficult to achieve within our original estimates. My role was to work between the community and university partners, and the challenge was meeting those timelines from an external funding perspective, but also supporting the great things that were being done at each community site. As we found out, there were many extra factors that played into these changing timelines. For example, the community engagement process (e.g., engaging the right groups and being inclusive with community members, staff, and councilors) needed time to achieve buy-in. As well, the community lead positions were paid positions, but most of our other community partners were contributing to KCLC on the side of their desk and therefore we needed to be sensitive to their work priorities. Another example is that the lead positions were part-time and often the leads had other part-time jobs, were taking an education program, and/or raising a family as well. There were many challenges regarding timelines, which made it that much more meaningful when the CLCs were successful.

Another challenge was related to the sometimes restrictive nature of funding. KCLC was funded as a research operating grant and therefore we were restricted in our ability to purchase hardware, furniture, etc. Our funding only supported human resource costs and "expendables" (i.e., items that could be used up before the project end date such as stationary). If one of the community leads required a webcam, microphone, keyboard, etc., we weren't allowed to reimburse them for that. It was unfortunate because these were things that might have given them a little bit more motivation and I had to say no. For example, we sent basic guides on how to use information technology to each CLC and when I asked Lisa where she was storing them, she said they were piled up because she wasn't able to get a bookshelf from the project grant or the community. I think at times those things were discouraging — not having the flexibility to purchase items for the CLCs.

Sometimes the CLCs' physical location was a challenge. For example, community members wanted certain health workshops (e.g., cooking classes) that were not conducive to a room full of computers. As well, all three of the CLCs were only accessible by stairs, which prevented people with disabilities from using them. It wasn't just the location of the CLC but the facilities as well — like needing air conditioning to keep the computers from overheating, a security system which meant it had to be put on the security grid, etc. It definitely taught us which questions were important to ask.

One final challenge I will mention is the nature of working at UBC — most procedures are very structured and time consuming and don't necessarily support a community-university partnership or match a community's way of doing things. For example, in order to obtain funding we had to create a structured work plan with timelines, community positions/hours, and pay rate well before we even knew if this was feasible. We said we would identify a research and a technical lead in each community, but the limited number of community members who were qualified/interested in the position made this unrealistic.

Future directions

I find that the community-university partnerships in KCLC are continually moving forward and developing. The expertise and personalities that everyone brought to the project enabled us to build each others' capacity as KCLC coordinators. Personally, I've developed a strong interest in the sustainability aspect of community-university partnerships such as KCLC. I experienced firsthand how much thought

and planning is needed to sustain partnerships and prevent the removal of an effective service after funding ends. As we neared the end of the project funding, and began to transition complete ownership of the CLCs to the communities, I developed a keen interest in seeing the CLCs sustained over time. It was through this process that I became aware that several factors influenced each CLC's journey to sustainability. My interest in understanding sustainability issues, led me to pursue a master's degree. Identifying these factors and learning about their intricate relationship with CLC success has continually been an inspiration. I hope that my master's work can be applied to other community-university projects and/or First Nations contexts.

Conclusion

The current article has illustrated each community and university lead's perception of how the CLCs developed over time. Each CLC evolved differently despite each community belonging to the same Nation. This underscores the importance of community context. Additionally, three key messages were found to be critical across all cases in order to ensure meaningful health education resource development. Each key message is described below.

1. *Technology-enabled communication tools facilitated successful university and community partners' communication during project development and implementation.*

Success with each CLC was partially due to open and regular communication between university partners, community partners, research leads, technical leads, and community members. Early on, the team recognized that CLC stakeholders lived across geographical distances and with different cultural backgrounds. Therefore a cooperative and respectful communication strategy was required. The university and community leads utilized many different tools to meet regularly, including teleconferences, web conferences, email, skype, and occasional face-to-face visits. These were necessary to deal with administrative tasks, collaborate on education and training events, problem-solve or simply share information. Regular contact between the partners helped maintain the focus on the project's goals. In the Lower Kootenay CLC, Lisa

spoke to the benefits of receiving regular online support from Nigel as he helped her develop her technical skills. She also emphasized that collaboratively creating research tools for community members was a great way to stay in contact and bring the community leads from each CLC closer together to work as a team. Openly communicating with community members helped identify pertinent health education needs within the community. For example, the music technology workshop idea stemmed from the leads talking to youth about how they could make use of the CLCs. A need was identified to provide a healthy outlet for creative expression. Because the workshop was so closely related to a real community need, the workshop was highly successful and had a strong personal impact on Brandy and Nigel, as well as many youth in the community. This idea is discussed further in the following message.

2. *Community-based resources such as KCLCs should meet community needs.*

The CLCs would have been less successful if the leads hadn't effectively engaged community members to identify their health education needs, then developed information and resources that addressed those needs. The music workshop described above is one example. Also, Nigel reported that at least one person used the CLC every day, which was undoubtedly due to the fact that the CLC was adaptable to meet individual community members' needs. Nigel installed a screen reader program to allow those with visual impairments to access the CLC. He also developed a Ktunaxa keyboard inlay, encouraging community members to access the CLC in their traditional language, which supported language use and preservation. Brandy also identified a very important health priority within the communities, a need for increased resources on suicide prevention. By seeing the impact that suicide had on the community, and identifying a need to speak out about the issue, the CLC became a place to help facilitate the healing process.

3. *Capacity building, training and support are necessary for a sense of ownership and project success.*

A very important factor in community-university relationships is capacity building. The community technology leads were responsible for maintaining

and updating CLC equipment, designing CLC websites used to disseminate health information, maintaining the websites with updated research articles, calendar events, and other relevant information, and supporting community members as they navigated CLC technology. However, no community lead started out with a strong knowledge base in each of the above skills. Each lead discussed in great length their personal development and capacity building throughout the project. For example Lisa built her capacity as a technology lead. Even though she began with limited knowledge around IT, receiving support from Nigel and attending a web design workshop allowed her to support the CLC equipment and website. Nigel, who started at the Aq'am CLC with a basic level of knowledge in IT, speaks to how much he learned throughout the project. He emerged as the overarching technical lead by mentoring other CLC technology needs, and now works for the Aq'am Band to support all community staff and their technology needs. Thus, his knowledge and skills developed over time and continue to be heavily valued within the community. Brandy become involved in the CLC project because of an IT course she took, and continued to build her knowledge base mentoring from James who taught her about computers by taking one apart and putting it back together again.

University partners also experienced capacity building. It is important for university and community partners to discuss early in a project the areas in which the community wants to build capacity. Once university partners realized there was a need for formal IT training, they worked to develop a web design workshop for all KCLC staff and interested community members. Identifying knowledge needs within a community and building in mechanisms to address those needs, supports capacity building and enhances ownership and empowerment of community programs.

Sustainability and future directions
Prior to the end of project funding, all partners discussed how each CLC and the community lead employment positions would be sustained within the three communities. Sustaining the centres depended on a number of factors, including the availability of space within the community and whether the community had the budget to pay for the community lead positions. Two of the three CLCs were sustained after the funding period by communities who felt that they had value and who could incorporate operational costs within their existing budget. The Akisq'nuk CLC continues to be an active resource within the community with James as the technical lead. Brandy left her position on her own accord shortly before the funding period ended. The Aq'am CLC remained open for some time, and eventually the physical space was converted to desk space for community staff. The online CLC presence still remains, and Nigel's position has broadened to provide technical support for the entire Aq'am band — undoubtedly due to his skills learnt in KCLC. Unfortunately the Lower Kootenay CLC was closed as the space was converted into a much needed home for troubled youth. Lisa is still employed by the Lower Kootenay Band.

The CLC concept is also evolving to new geographical areas. A small amount of funding enabled the UBC-Ktunaxa team to travel to the Yukon and deliver community engagement knowledge sharing workshops with several Yukon First Nations communities. Members from the Ktunaxa Nation and UBC team members will continue to assist in the development of these new Yukon CLCs, by sharing lessons learned and best practices that have been translated into a number of tools. It is hoped that the insights identified in this article can help translate similar opportunities in other First Nations communities in the future.

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Katherine Wisener (University of British Columbia)

Katherine Wisener joined the eHealth Strategy Office in September 2007 and is currently the project manager for eMentoring: a four-year health education program designed to support Aboriginal youth pursue health careers. Katherine has a Master of Arts Degree in the Human Development, Learning and Culture program from UBC's Faculty of Education. Her research interests focus on understanding how to best support learning and educational delivery in an Aboriginal context, ultimately to improve health outcomes. Katherine was the lead university researcher on the Ktunaxa Community Learning Centres project.
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Nigel Warden (Aq'am Community Learning Centre)

Nigel Warden is a Ktunaxa Nation member and lives in Cranbrook, BC. Nigel worked as the Technology Lead for the Aq'am Community Learning Centre from 2007-2009. During that time he supported equipment needs and developed the health websites for the CLC. Nigel's IT skills developed throughout the project and he now works as the IT specialist for all Aq'am staff.

James N. White (Akisq'nuk Community Learning Centre)

Born and raised in the ?akisqnuk First Nation Community, a community situated in the Columbia Valley along the Great Windermere lake. Joined the CLC team September 2007, employed as the Technical Lead , to provide technical and training expertise for the Research Lead. My interests are in reading, music, wood art, and computer related stuff. Likes travelling by vehicle, don't like flying. Presently working for the ?akisqnuk First Nation.

Lisa Three Feathers (Lower Kootenay Community Learning Centre)

Lisa Three Feathers is a Ktunaxa Nation member currently living in Lower Kootenay Band located just minutes south of Creston BC. Lisa is currently working as the Administrative Assistant for The Lower Kootenay Band Office. She joined the Community Learning Centre team in fall of 2007. Her role was the Research Lead, which was to collect information from the community and use it for the website. She is a single mother who enjoys spending time with her son. Some of her hobbies include Listening to music, reading, watching movies, research using the internet, driving, and mostly spend time with family.

Brandy Joe (Akisq'nuk Community Learning Centre)

Brandy Joe is a member of the Akisq'nuk First Nation near Invermere, BC. Brandy worked as the Research Lead for the Akisq'nuk Community Learning Centre. She collected information and resources on a number of health priorities and made them available on the CLC website. Specifically, she wrote a powerful article on suicide prevention and helped to organize

a music technology workshop for Ktunaxa youth. She has two children and enjoys music, writing and travelling.

Sandra Jarvis-Selinger (University of British Columbia)

Sandra is an Assistant Professor in the Department of Surgery and Associate Director in the eHealth Strategy Office. She is a PhD-trained educational specialist and researcher in the area of Human Learning, Development and Instruction (UBC Faculty of Education). Her work focuses on educational innovation and knowledge translation, which specifically includes: 1) developing teaching excellence, 2) curriculum design, development and evaluation, and 3) using technology to support education. Her research supports the development, implementation, and evaluation of effective educational approaches in health education. Through knowledge translation, innovative approaches, and respectful research partnerships, her research addresses positive curricular change and effective lifelong learning by supporting critical educational transitions.