

# Capacity Interrupted: The Kloshe Tillicum Graduate Student Training Experience

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*In response to the 2001 Canadian Institutes of Health Research-Institute of Aboriginal Peoples Health (CIHR-IAPH) national initiative to develop research capacity in Aboriginal Health Research (AHR), a team of British Columbia (BC) researchers embarked on a graduate student training program. The rationale was to improve Aboriginal health outcomes by creating a research agenda that would be enacted by the next generation of highly-trained Aboriginal health researchers. The program, eventually known as Kloshe Tillicum: Healthy People, Healthy Relations (KT), included students at the four research-intensive universities in the province and provided scholarships, mentorship, academic skill development, writing retreats, and other activities designed to promote and encourage students into high-level careers in Aboriginal health research (AHR). Inherent in the development of such a program was the adoption of a training methodology that could challenge existing research paradigms while encompassing new Indigenous research methodologies emerging from community and place-based research. An adaptation of Kirkness and Barnhardt's (1991) 4Rs of Indigenous education (respect, relevance, reciprocity, responsibility) offered a solution but inadvertently highlighted the potential danger of erasing individual, Indigenous nation-based identities*

*in favour of an essentialized, universal, or single Indigenous identity. Kloshe Tillicum found that students required support on at least three levels: financial, methodological, and social. Funding for the program ended in 2014 and, while AHR capacity was increased, the process has only just begun. This paper examines the KT graduate training experience through student profiles, self-reporting, and career outcomes to reflect on the potential impact on AHR in BC. With its loss, is capacity interrupted?*

### Introduction

That Indigenous peoples have lower health outcomes in comparison with other groups in Canada is incontrovertible (Health Canada, 2014). Health disparities have been officially recorded since the 1970s when *Indian* sampling increased in national health surveys. These disparities are now seen as arising from the so-called non-medical or social determinants of health (Lavis, 2002; Reading & Wien, 2009; Waldram, Herring, & Young, 2006). Despite this focus, Frolich, Ross, and Richmond (2006) could point to the limited degree of “actual policy uptake of these ideas and no development of concrete strategies” in programs to reduce the disparities (p. 133). Even today, the vast evidence is resigned to epithets such as: “The statistics are familiar to many of us” (Canadian Institutes of Health Research-Institute of Aboriginal Peoples’ Health, 2011a).

In 2001, the goal of the Canadian Institutes of Health Research—Institute of Aboriginal Peoples’ Health (CIHR-IAPH) to “promote innovative research” led to the development of a focused research agenda in Aboriginal Health (2011a). Innovative in itself, the newly created Institute of Aboriginal Peoples’ Health (IAPH) announced goals to “improve Aboriginal health information, **develop research capacity** [emphasis added], better translate research into practice, and inform public health policy” (Reading & Nowgesic, 2002). While this has brought Aboriginal health issues into the spotlight, more time is needed to assess the degree of health improvement. This paper examines research capacity development among graduate students directly resulting from the CIHR-IAPH-funded Aboriginal Capacity and Developmental Research Environment (ACADRE) and Kloshe Tillicum: Healthy People, Healthy Relations, Network Environment for Aboriginal Health Research (NEAHR) centres in British Columbia (BC).

The ACADRE centre at the University of British Columbia (UBC) was first funded from 2002 to 2007, and then again from 2007 to 2010, with a NEAHR renewal when it entered into a one-year partnership with the Centre for Aboriginal Health research at the University of Victoria’s (UVic) Network Environment for Aboriginal Research (NEARBC) and known as the Network Environments for Aboriginal Health Research in British Columbia (NEAHRBC). In 2010, the centre continued with a new partner

in the Yukon Territories, the Arctic Institute for Community Based Research (AICBR), under a new name: *Kloshe Tillicum: Healthy People, Healthy Relations, Network Environments for Aboriginal Health Research in BC and the Yukon* (BC NEAHR). In 2013, CIHR-IAPH announced that the NEAHR program would be ending in 2014.<sup>1</sup>

British Columbia is home to a remarkably diverse Indigenous population, making it, in and of itself, an international community. Eight of the 11 Indigenous languages spoken in Canada are found in BC (British Columbia Ministry of Education, 2013), with nearly one-third of all First Nations communities in Canada located within BC's borders (First Peoples' Cultural Council, 2008). Proper respect of the diverse cultural, linguistic, spiritual, political, and epistemological traditions and practices of these distinct nations begins with rejecting essentialist notions of an *Indigenous identity* that somehow mark Indigenous peoples as a homogeneous cultural group. With this challenge, an Indigenous health response necessarily implies an international context. To meet the mandate to develop research capacity in Aboriginal health, the Kloshe Tillicum program, through its team of Indigenous and non-Indigenous researchers, has paid careful and constant attention to three particular challenges.

First, the research team needed to acknowledge the ways in which personal roles within the academy and within the cultural territories inhabited could either support or oppose threats of cultural erasure. The Kloshe Tillicum students came from many different cultural and academic backgrounds. To support their efforts to navigate the complex landscape of Aboriginal Health Research (AHR), the Kloshe Tillicum team acknowledged the ways in which the team's own diverse cultural backgrounds, academic training, and professional positions as privileged academics could work to undermine (rather than underpin) our student's cultural identity and career goals. Second, Kloshe Tillicum's principal investigators recognized that increasing capacity in AHR could have several different meanings. through increasing the number of persons able to conduct health research aimed at improving Indigenous health and wellness who are: (a) Indigenous students; (b) non-Indigenous students interested in exploring careers in health research; (c) Indigenous community members involved in AHR; and (d) health care providers involved in AHR. Third, the research team recognized that by merely adding more university-trained personnel to the roster of Aboriginal health researchers, it would not, in and of itself, result in culturally-relevant health care for Indigenous communities; however, they recognized that such capacity would be the foundation on which the change would occur. It was a challenge to work within the restrictions of the Kloshe Tillicum funding to accommodate

these separate but pressing needs altogether; therefore, this paper will focus on the first challenge: the training of Indigenous students who constitute the majority of Kloshe Tillicum awardees.

### *International Context*

Previous research in New Zealand, the United Kingdom, Canada, and the United States suggests that increasing the number of Aboriginal health providers creates better access to health care (Crampton, Davis, Lay-Yee, Raymont, Forrest, & Starfield, 2005; Green, Bradby, Chan, & Lee, 2006; Gulliford, Figueroa-Munoz, Morgan, Hughes, Gibson, Beech, & Hudson, 2002; Peiris, Brown, & Cass, 2008; Stephens, Porter, Nettleton, & Willis, 2006; Tang & Browne, 2008; Tookenay, 1996). In one of the first demographic and socio-economic studies of medical students in Canada since the 1960s, Dhalla, Kwong, Streiner, Baddour, Waddell, and Johnson (2002) showed that Aboriginal students were under-represented in medical school and linked student origin with eventual place of practice. Also, numerous studies in the United States, Australia, and New Zealand have shown that medical students from *ethnic* or rural communities were more likely to practice in their home locales (Adkins, Anderson, Cullen, Myers, Newman, & Schwarz, 1987; Boulger, 1991; Brazeau, Potts, & Hickner, 1990; Dunbabin & Levitt, 2003; Easterbrook, Godwin, Wilson, Hodgetts, Brown, Pong, & Najgebauer, 1999; Kassebaum & Szenas, 1993; Rabinowitz, Diamond, Markham, & Paynter, 2001; Zepke & Leach, 2005). Others have shown that beyond sheer numbers of culturally safe practitioners and location of practice, access to health care for Indigenous people is greatly enhanced by culturally-specific health programming (Aboriginal Nurses Association of Canada, 1996; Browne & Fiske, 2001; Browne, Fiske, & Thomas, 2000; Dokis, 2001/2002; Gray, 1996; Hoskins, 1999; Young, O'Neil, Elias, Leader, Reading, & McDonald, 1999; King, Smith, & Gracey, 2009; National Aboriginal Health Organization, 2003; Purden, 2005; Racher & Annis, 2007; Royal Commission on Aboriginal Peoples, 1996). Therefore, culturally competent health care and access to health care providers are two ways to improve Indigenous peoples' health outcomes in Canada.

Acknowledging that cultural relevance in Aboriginal health care would not occur without self-determined activity, Sherwood and Edwards (2006) argued that Indigenous wellness, in its holistic expression, is tied to decolonization. In Canada, Indigenous peoples have recognized the inextricable links between self-determination and health and have long insisted on the right to be centrally involved in their health programming (O'Neil, 2013; Reading & Nowgesic, 2002; Schnarch, 2004). In his review of the viability of Indigenous careers, Tunison (2007, p. 22) contended that

self-determined activity involved the “dedicated recruitment and retention of Aboriginal people both as potential students and as instructors” and that education and employment equity programs were necessary to reverse the under-representation of Indigenous health researchers, instructors, practitioners, and policy makers. Therefore, addressing the gaps in our current health systems requires a self-governing multifarious approach towards the practice of Indigenous health systems and perspectives, increasing the numbers of students and teachers, and fostering a consistent investigation of Indigenous ontologies and epistemologies with the aim of developing appropriate practice models (Browne, Fiske, & Thomas, 2000; Smith, 1999; Wilson, 2008). Successful models of international adaptations of these principles in New Zealand and the United States influenced the design of the newly-initiated CIHR-IAPH. .

In 1988, New Zealand policy makers equated Indigenous self-determination in health with training Indigenous academic health professionals and researchers to develop and promote their own particular health ontologies (Smith, 1999). To that end, programs that mentor and supervise Indigenous graduate students “through their course work and thesis work” were implemented (Smith, 1999). The Here Wananga Program at the Research Unit for Maori Education at the University of Auckland, from 1989 to 1996, outlined how it would train its graduate students by providing opportunities to become “involved as research assistants in research carried out by staff”; to participate in conferences and research discussions by experienced researchers; and to network with other Indigenous units and centres while upholding the foundational interface between empirical and theoretical approaches to research (Smith, 1999, p. 132).

In the United States in 1999, the University of New Mexico (UNM) embarked on two training modules which were funded by the National Institute of Mental Health (NIMH). Focusing on mental health services research training, their aims were specifically to increase the presence of American Indian and Hispanic junior faculty and graduate students in research. The program was two-fold: (1) to provide funding for new faculty to engage in their own research as well as for graduate scholarships; and (2) to provide training activities that included instruction in research methods, grant applications, management, tutorial sessions on research writing, one-on-one mentoring with mentoring contracts, informal gatherings, and mentee support groups (Waitzkin, Yager, Parker, & Duran, 2006). In 2001, Johns Hopkins University’s (JHU) Center for American Indian Health created its graduate training program, with scholarships and certificate programs offering AHR courses in public health, test preparation, research theory, and field work. Based on its 20 years of engagement

in Indigenous communities, the program continues to offer a comprehensive training for graduate students (Johns Hopkins Bloomberg School of Public Health, 2015).

The Aboriginal Capacity and Developmental Research Environments (ACADRE) were an early initiative of Canada's newly-formed CIHR-IAPH in 2001. Informed by the similarly new (2000) Native American Research Centres for Health in the United States (Indian Health Service, n.d.), four regional centres were to be funded over these first six years. Eventually, nine regional centres across the country were created to build capacity for AHR and to facilitate cross-pollination of ideas to deliver regionalized, culturally relevant research and training. In 2007, the second phase of the Canadian ACADRE program, Network Environments for Aboriginal Health Research (NEAHR), was launched to "sustain and evolve the momentum" (CIHR-IAPH, 2011b).

From the outset, the CIHR-IAPH ACADRE program, grounded in a holistic and cross-disciplinary approach, sought to include Aboriginal people in all health research activities with a particular emphasis on supporting graduate students focusing on Aboriginal health. The aim was to build AHR capacity by not only developing the next generation of Indigenous health researchers, but also by supporting their scientific and academic careers. In targeting graduate students, a significant portion of CIHR-IAPH funds were directly allocated to support and nurture up-and-coming researchers. Networks were developed to focus research on four foundational research pillars: biomedical; clinical; health systems and services; and social, cultural, environmental, and population health. Eventually, the effort was to join a global network of AHR to share expertise, promote information sharing on best practices in research methodology, develop resourceful partnerships, support ethical conduct, encourage community engagement, advance knowledge translation, and build research capacity through training and experience around the world (Reading & Nowgesic, 2002).

### *Kloshe Tillicum's Theoretical Framework*

In developing its program, Kloshe Tillicum used a theoretical framework grounded in Indigenous traditional knowledge, particularly based on relations and its values. The educational model of the 4Rs (Kirkness & Barnhardt, 1991), previously adapted by Archibald, Jovel, McCormick, Vedan, and Thira (2003) for AHR, was used to illustrate fundamental values, beliefs, and teachings nested in community relationships and life. The 4Rs (reciprocity, respect, relevance, responsibility) were used to guide the process of engagement, research, dissemination, and translation of knowl-

edge, having the community at the centre of the research process. The 4Rs (Archibald et al., 2003) are as follows:

- *Respect* is demonstrated toward Indigenous Peoples' cultures, communities and wellness by valuing diverse Indigenous knowledges of health matters and by inclusion of appropriate contributing health science.
- *Relevance* is demonstrated by health training and research that is meaningful to Indigenous peoples, not just the researcher(s) and academic research process.
- *Reciprocity* is accomplished through a two-way process of learning and research exchange. It renders knowledge hierarchies irrelevant and fundamentally overturns the researcher / subject relationship. Both community and university benefit from such effective training and research relationships.
- *Responsibility* is accomplished by active and rigorous self-reflection, engagement and consultation with community and an ongoing emphasis on demystifying roles and stringent attention to research ethics.

The use of this framework was an attempt to decolonize the research process, particularly the way to develop relationships and engagement with Aboriginal communities and by also encouraging researchers to position themselves within AHR paradigms. This paper illustrates how students were encouraged and challenged to incorporate and reflect the purpose of their research in relation to the 4Rs theoretical framework. The result of this process generated at least 141 projects and theses, making use of this framework in different degrees of adaptation.

Network theory, stemming from implementation research in the late 1970s and 1980s which showed that "program success was far more dependent upon the skills of specific individuals in 'local implementation structures' than upon the efforts of central government" (Hanf, Hjern, & Porter, 1978, p. 32), was used to operationalize the 4Rs. Processes had to start from the "actors" who interact on an issue at the local level (Sabatier, 1986; Scott & Carrington, 2011). Their inter-subjective collaborations and analyses could be delivered through *networks* of local-level expertise which the international Indigenous academy later understood could be built through the achievement of a critical mass (in this case, AHR scholars). Critical mass theory as a foundation for affirmative action initiatives had come into use as the generalized notion (as in physics where it refers to the quantifiable amount of radioactive material necessary for a fission explosion) that a certain threshold (number) of participants had to be achieved in order for large-scale social impact or sustainable change to occur (Oliver,

Marwell, & Teixeira, 1985). Despite having undefined numerical targets when designing AHR networks inclusive of developing local expertise, CIHR-IAPH inadvertently relied on critical mass principles of generally increasing the numbers of AHR researchers.

### *Methodology and Student Participants*

Between 2003 and 2012, Kloshe Tillicum provided 147 scholarships to 90 Indigenous and non-Indigenous students. Of the 147 scholarships, five types were offered: (1) 15 clinician research mentorships (CRM: 10%); (2) 17 undergraduate research mentorships (UG: 12%); (3) 53 master's awards (M: 36%); (4) 58 doctoral awards (PhD: 39%); and (5) 4 post-doctoral awards (post-doc: 3%). The funding term was one full calendar year.

Two required anecdotal and non-standardized reports were used to obtain feedback from students, to facilitate student progression through their degrees and to improve the training program. A formative report halfway through the award term and a summative report at the end of the award term included questions about student topics, progress, accomplishments, challenges, preparedness for AHR, outcomes of the award, and suggestions for training opportunities. Evaluations following student training processes also gathered student feedback about efficacy and future programming. Additional student information was gathered from award applications, student presentations, and submitted work. Information gathered was grouped by year and into themes to determine trends.

Kloshe Tillicum's 90 student awardees were predominantly female (69/90, 77%), aligning with gender enrolment statistics for Indigenous post-secondary graduate students (Heslop, 2009; Mendelson, 2006). The Indigenous students self-identified as Métis (15/90, 17%), Inuit (1/90, 1%), or First Nations (52/90, 57%). Of the 52 who identified as First Nations, 34 (65%) were from British Columbia's Indigenous nations and 18 (35%) were from other nations across North America. The 22 non-Indigenous students who received Kloshe Tillicum funding demonstrated cross-cultural understanding, perspectives, and experience in research and scholarly pursuits in Indigenous health.

### *How the 4Rs Were Used in Program Development*

The 4Rs were used to develop the Kloshe Tillicum program in several ways. Adhering to reciprocity principles, the program included several feedback mechanisms: reports, evaluations, student presentations, mentorship sessions, and informal discussions. To be relevant for students, the program incorporated aspects of student experience beyond academic

training, such as social interactions and career advice. For communities, relevance was achieved in the student approaches to their research and via their topics. Responsibility to students meant that they were adequately trained to ethically conduct relevant research with communities. Finally, Kloshe Tillicum respected Indigenous peoples' health needs by focusing on the multivariate needs of student trainees to prepare them for culturally competent and relevant research.

*How the 4Rs Were Used in Analyzing the Student Data*

Using the 4Rs to interpret program outcomes proved complex given that single responses could fit into more than one category. For example, a student presentation could be seen as embodying respect in adhering to community protocols and agreement around the dissemination of the research. It could equally be seen as the ultimate responsibility of the student to translate knowledge through presentation of findings. It represents reciprocity when the student presents the material to the participants for their comment, as well as in terms of the student's contribution of new knowledge. Additionally, if the topic was derived from community-based participatory research (CBPR) principles, then a presentation of findings is relevant. For discussion purposes, the 4Rs are used mostly to highlight key findings in four areas: (1) student experience—respect; (2) student topics—relevance; (3) methodology/theoretical training—responsibility; and (4) obtain information and gain understanding from PIs and community—reciprocity.

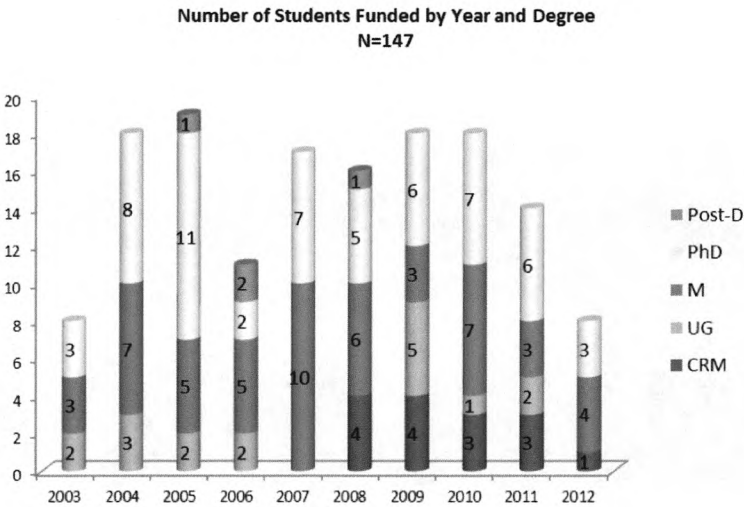


Figure 1. Number of Students Funded by Year and Degree

Results

Kloshe Tillicum maintained steady funding of scholarships, averaging 16.4 per year over its operating years and excluding the wind-up and shut-down years (Figure 1). Master’s and doctoral-level funding were consistently awarded while the other scholarships fluctuated in demand. Annual total expenditures for awards were roughly equivalent and amounted to over one-half of Kloshe Tillicum’s annual budget. Prior to 2007, single awards were often split between two candidates in an effort to meet student demand. After 2007, only full awards were distributed. With the exception of those who are currently students (21), all of Kloshe Tillicum awardees graduated with the degree they pursued when they received their awards.

Eighty-nine awardees attended BC universities. As shown in Figure 2, the number of scholarships at UBC and UVic was equivalent to the provincial average enrollment of Indigenous students for those schools between 2007 and 2013 (DataBC, 2013). However, University of Northern BC (UNBC) students received a disproportionately higher number, while Thompson Rivers University (TRU) and Simon Fraser University (SFU) students received lower numbers of awards. TRU’s result is expected given that it was newly incorporated as a university in 2005, with few graduate programs.

In terms of award impact, the most commonly listed impact of the Kloshe Tillicum grants was release from financial stressors. More surprising were the impacts on student confidence and self-esteem. Of great importance was student feedback at social and training events about the reflections on ethics and principles of conducting research with Indigenous communities.

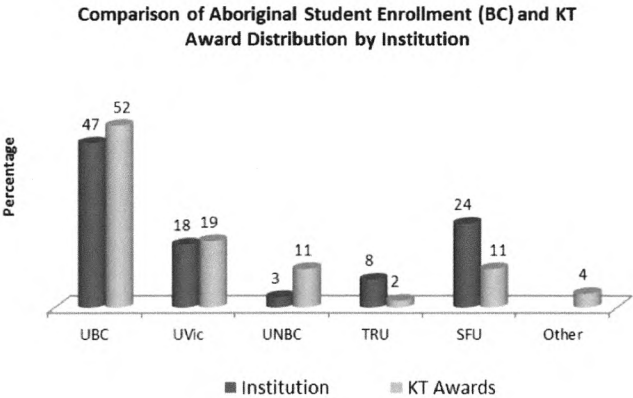


Figure 2. Comparison of Aboriginal Student Enrollment (BC) and KT Award Distribution by Institution

*Respecting Student Training Needs—The Kloshe Tillicum Application Process*

The application process (Figure 3) can be counted among Kloshe Tillicum’s successes. In providing opportunities for students who may not yet have had access to high-level application processes, it directly built competence to complete a multi-part research grant application. Zepke and Leach (2005), in their best evidence synthesis of 146 studies on student retention programs, asserted that many Indigenous students newly engaging in academic systems benefited from extra support in negotiating the organizational behaviours, systems, and processes of institutions. Kloshe Tillicum respected students’ needs for a relationship outside of and prior to the application itself (Barton, 2004; Donald, 2012; Sheehan, 2004) through a staff coordinator. This relationship facilitated student participation, as evidenced by the type and level of communication between the coordinator and students, and in students’ level of self-reporting. Roughly 85% of students needed more than one interaction with Kloshe Tillicum, with 25% needing up to five contacts before completing and submitting their application. Students needed clarification of instructions, and help with defining their research projects and editing their written statements. Adopting an instructional method of grant application, not necessarily available in a non-Indigenous context, resulted in applications that were equally competitive with those that were directly submitted; at least four of Kloshe Tillicum’s graduate recipients went on to win prestigious health research scholarships.

*Respecting Student Needs for Social Support*

Beyond the application process, students sought networking, mentoring, training, and support opportunities, as well as information about other aspects of academic and campus life. The impact of this relationship was not

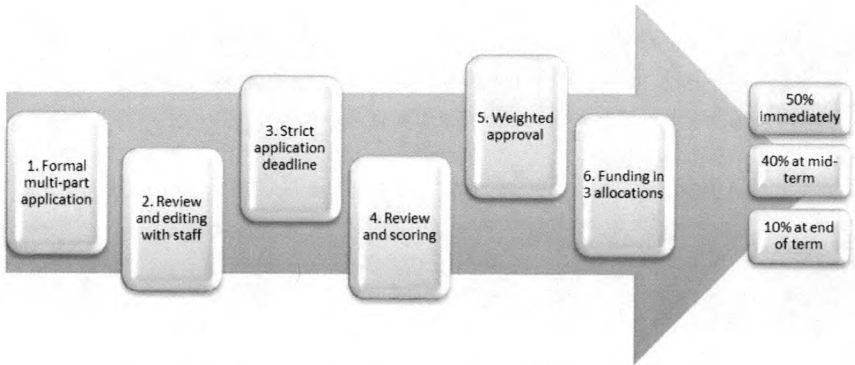


Figure 3. The Kloshe Tillicum Application Process

systematically monitored, but was indicated in formal student reports. Students also spoke of the importance of the personal and intellectual support of Kloshe Tillicum. One student came to “greatly appreciate [the] coordinator’s guidance and mentorship” (personal communication, master’s student, 2011). Yet another noted that “There is a level of support that comes from this award and the organization that is unique and I feel privileged to be selected and be among some incredibly intelligent and passionate people. I am humbled” (personal communication, master’s student, 2010).

Many students found the award to be validating. The award “made me feel that my research was important” (personal communication, master’s student, 2008) and that “[I] had something to contribute to Aboriginal health research” (personal communication, doctoral student, 2006) and that it “... was significant to me personally, as I feel validated and supported in the work I am doing” (personal communication, doctoral student, 2004). This emergence of an individual voice is evident in applications from the same student, from one year to the next.

#### *Respecting Student Needs—Financial Support*

While the federal Post-Secondary Student Support Program (PSSSP) distributes \$300 million to eligible Indigenous college and university students, the fund has not increased since 1994 (Association of Universities and Colleges of Canada, 2011). This capped growth has forced communities to fund fewer students or to decrease scholarship amounts. Since Indigenous peoples represent a larger proportion of the rural and remote population, and research evidence “demonstrates that distance from university is a factor that influences university participation rates”, these students face further financial obstacles (Association of Universities and Colleges of Canada, 2011, p. 20). An Auditor General of Canada (2004) report concluded that 9,500 Indigenous students were prevented from higher education due to financial restraints. Kloshe Tillicum awards reflected current CIHR training award amounts.

Kloshe Tillicum grants allowed students to pay their tuition fees without having to seek employment. Students benefited by being able to purchase field equipment (such as tape recorders), pay for research transcription, obtain materials for research dissemination, and to provide carefully selected honoraria and incentives for participants, in line with protocols and respect for the participants sharing their wisdom. For example, a student researcher conducting research with homeless youth provided socks and hygiene products to project participants.

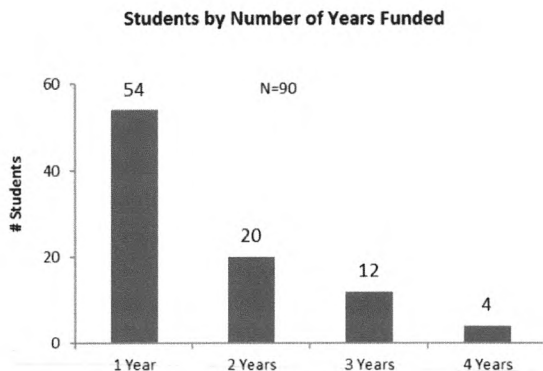
Students working in distant communities had greater flexibility to travel and more time to spend in a community. Several students travelled from

southern BC to communities in the north: Prince Rupert, Hazelton, Burns Lake, and Prince George. Some cited expenses resulting from “research in a community that is located far from Vancouver” (personal communication, student) while others spoke of the opportunity to engage directly with participants and to do follow-up interviews. For students working in their home communities, the impacts of the grant were immediate and specific. Role modeling of academic CBPR in community meetings and dinners, as well as in the interview process itself, demonstrated student research competence and educational accomplishment to the community. On the part of the community, being engaged with *one of their own* made the research process relevant, less intimidating, and contributed to a sense of community empowerment and engagement: “a local chief has even generously donated the use of sacred space [for individual and group research activity]” (personal communication, master’s student, 2008).

Students were able to attend classes full-time and felt they achieved higher grades as a result of the award. One student noted: “I have been working since I was in grade nine at the age of fourteen. This is the first time that I have not worked and was able to focus on my education. A result of this award, is that, this is the highest that my marks have been currently with a 4.23 GPA with five A+ and two As” (personal communication, master’s student, 2012). For some students, the award meant the difference between “being able to complete my MA research and thesis” (personal communication, student) or not. One student mentioned that the funding enabled her to “maintain a healthy work-life balance” (personal communication, student), and this was echoed by other students who came to graduate school as mature students with established family responsibilities.

### *Responsibility through Collective Training*

Kloshe Tillicum recognized the importance of cohort group training for AHR (Zepke & Leach, 2005). Its initial funding model of annual open competition (as opposed to directed degree funding) ensured that a greater number of students would receive awards. This relatively rapidly-identified cohort group of trainees in AHR created a pool of 90 students who would otherwise have had limited opportunities to pursue AHR. Funding over the ten years was delivered to: 54 students (60%) for a one-year term; 32 students (36%) for two to three years; and four students (4%) for the maximum of four years’ of funding (Figure 4). As Kloshe Tillicum developed, its funding model shifted to include also directed multi-year funding for students on an AHR career trajectory.



*Figure 4. Students by Number of Years Funded*

To enhance the training program, financial awards were supported by evolving opportunities to attend and present in forums, workshops, and mentorship events. Each student was encouraged to present their work at student forums, including the annual National Gathering of Graduate Students. This is a gathering which was established by the CIHR-IAPH in 2002 specifically for AHR students. As will be noted later, students ranked cohort and networking opportunities for emotional and intellectual support as the most beneficial and/or desired improvements to the Kloshe Tillicum program.

#### *Responsibility through Innovation*

The Clinician Research Mentorship Program (CRM), introduced in 2008, was a Kloshe Tillicum innovation designed to encourage medical students, family practice residents, specialty residents, and other students of health care professions to mentor with clinician researchers. Thirteen of the 15 CRM recipients received one-year awards. It is premature to determine whether some will develop clinician researcher careers—the goal of the program—since trainees at this early stage of education still have two to eight years of clinical training ahead of them.

#### *Relevance of Student Research for Indigenous Communities and CIHR*

To assess relevance for communities, the CIHR-IAPH student topics were grouped into the 13 CIHR research institutes topics: (1) Aboriginal peoples' health; (2) aging; (3) cancer research; (4) circulatory and respiratory health; (5) gender and health; (6) genetics; (7) health services and policy research; (8) human development, child, and youth health; (9) infection and immu-

nity; (10) musculoskeletal health and arthritis; (11) neurosciences, mental health, and addiction; (12) nutrition, metabolism, and diabetes; and (13) population and public health. From Table 1, it is evident that Kloshe Tillicum graduate students conducted research across the spectrum of CIHR institutes and not exclusively in Aboriginal peoples' health.

Forty-six percent of student topics fell in two CIHR Institute areas: *neurosciences, mental health, and addiction* and *health services and policy*. The mental health focus may be related to the emergence of residential school issues in the 1990s and 2000s as a primary mental health issue, and is thus completely relevant to community research priorities. Examples of students' topics on policy and access to health care indicate a priority for self-determined health services relevant for communities: *Integrating Aboriginal Culture in Social Work Practice* (master's thesis); *Aboriginal Student Voices On Health* (master's thesis); *One Way or Another: Narratives and Alternating Pathways to Health and Healing Among an Aboriginal Population* (doctoral dissertation); *Health Informatics and Building Healthy Communities* (master's thesis); *Creating Healthy Educational Programs* (doctoral dissertation); and *Enhancing the Access To, and Provision of, Traditional-based Health Services, by and for Indigenous Peoples in Vancouver* (doctoral dissertation).

Table 1  
Student Topics in CIHR Research Categories

Student Topics in CIHR Research Categories	Major	Minor
Aboriginal Peoples' Health	3	
Aging	1	
Cancer Research		
Circulatory and Respiratory Health	1	
Gender and Health	9	
Genetics	3	
Health Services and Policy Research	20	
Human Development, Child, and Youth Health	8	3
Infection and Immunity	1	
Musculoskeletal Health and Arthritis	1	
Neurosciences, Mental Health, and Addiction	20	1
Nutrition, Metabolism, and Diabetes	11	
Population and Public Health	8	
<b>TOTAL</b>	<b>86</b>	<b>4</b>

Relevance for communities is further evidenced in many of the titles of student projects. Some students looked at very specific community issues (*Ecological and Cultural Restriction of an Iconic Plant Food (Fritillaria camschatcensis) in the Squamish River Estuary; Exploring the Impact of Long QT Syndrome*) while others examined the efficacy of health programs for Indigenous target groups (*Street Youth's Experience of Long-term Counseling: A qualitative Study; A Phenomenological Study of the Lived Experiences and Well-being of Two Spirit Women*). Others defined their own methodologies based on their national worldviews (*Strong and Healthy Citizens and Communities: Early Childhood Development According to Ktunaxa Self-Determination and Development; Onen Kiwahi: An Aboriginal Worldview as the Foundation in a Practicing Family Therapy Model; U'h Nook Noh Ga'nah (in our words): Understanding of Student Assessment by Carrier FN Parents*). As this sample highlights, regardless of the topic, students focused on issues directly relevant to Indigenous peoples.

#### *Relevance for Students—Methodology Training Needs*

While all of the student topics contained Indigenous elements in terms of methodology, healing practices, blended approaches, and such to varying degrees, only three student topics exclusively explored Indigenous knowledge specifically in relation to health, despite recent innovative thinking about Indigenous practice and research (Kovach, 2010; Smith, 1999; Wilson, 2008). Kloshe Tillicum student experiences, in addressing the disconnect between dominant academic health research and their own research methods, suggest a reason: "I often questioned the limitations of doing research that felt foreign and somehow inappropriate. [I needed to] ... search out more [Nation name]-friendly research methods" (personal communication, master's student, 2006); and "I was required to justify the use of ... participatory action approach [to university ethics board]" (personal communication, master's student, 2008). The graduate students' experiences reflect a difficulty facing researchers engaging with distinct worldviews and knowledge systems (Sherwood & Edwards, 2006; Waitzkin et al., 2006). Without the necessary time and training, unintentional omissions of knowledges from one worldview when working in another knowledge system are inevitable. It is only with reflection, practice, and support that one can hope to operationalize separate and distinct identities. Relevance for students in training could allow opportunities to intellectually *step outside* of accepted scientific pedagogies and methodologies that have informed students for most of their academic lives and to contest the process of assimilation (Sherwood & Edwards, 2006; Smith, 1999; Wilson, 2008).

### *Relevance for Student Careers—Social Support through Mentorship*

As students step outside of accepted methodologies, they also step into established institutional roles as career scholars. The *Indigenous academy* becomes a crucial guide, in terms of relevance for students and new investigators, as they negotiate the terrain between the individual, the citizen of an Indigenous nation, and the member of a university faculty that is small in number with the ever-present pressure to represent the whole of Indigenous culture. In the international context, that pressure is multiplied and compounded by many external and internal factors. Thus, in maintaining an Indigenous collective while contesting a pan-Indigenous identity, Indigenous academics act as much-needed role models for students-in-training (Government of Canada, n.d.; Tunison, 2009). Kloshe Tillicum mentorship was credited with “playing an integral role in my research by providing the leadership of other Aboriginal researchers” (personal communication, master’s student, 2003). One student was grateful for “freedom and guidelines to explore the multiple roles” (personal communication, post-doctoral fellow, 2006) while another found mentorship to be “extremely valuable to me, and a substantial source of strength” (personal communication, CRM recipient, 2009). To be relevant in guiding new AHR scholars, mentorship in the competing roles of a career researcher is also indicated for training programs.

### *Responsibility to Students—Financial Support Leads to Methodological Support*

One side benefit of release from employment is having more time to reflect and to think about one’s academic work and meaning. Such focused time not only enhanced student ability to focus on course-work, but also contributed to the deepening of their theoretical and methodological approaches and to consider further studies: “I have shifted my thinking and am now considering post-doctoral studies” (personal communication, doctoral student, 2004) and “I would not be able to conceptualize this research in these ways if it were not for the funding” (personal communication, doctoral student, 2011) provided by Kloshe Tillicum. Referring to the 4Rs, one student wrote, “these concepts have weighed heavily on me” (personal communication, doctoral student, 2008), and went on to note that as a result, he took a full year to develop an ethical protocol for research with his community, a continuation that he left in the community for future research interactions. Another student, in contemplating her impending interview questions, was “humbled” by the enormity of what she was asking the community to do (personal communication, student). Another student “totally changed” her research topic after realizing her responsibil-

ity as a researcher to build capacity in the group with whom she intended to work (personal communication, student). One student noted how she integrated the 4Rs: "these have become living agreements of my participation in this research" (personal communication, doctoral student, 2004).

That students engaging epistemologically with Indigenous worldviews might require time to fully apprehend the translation from theory to praxis was often repeated in the report section on preparedness for research: "This valuable time added to the breadth and depth of inquiry" and "I am indebted and dependent upon funding scholarships in order to spend time reading and exploring the qualitative context" (personal communication, doctoral student, 2012). One student needed to "reflect on how planning" could provide the framework for his research (personal communication, student) while another noted that Kloshe Tillicum engendered holistic thinking by encouraging her "to make the important link between health and linguistics." (personal communication, student). Students spoke of the influence of the 4Rs on the theoretical and methodological approaches to their work. For some it was an articulation of already held principles while, for others, it was a revelatory introduction into the politics of difference.

#### *Responsibility to Students—Training and Social Support*

Networking had a major impact on students and was the most-mentioned suggestion for future Kloshe Tillicum activities. Students spoke of the need "to share and hone ideas" and the importance of mentoring, peer study groups, "reading groups composed of students, faculty and researchers", and more writing retreats which "helped focus my topic", "helping me to gather more scholarly resources, build personal capacity and demystify the publishing and writing process" (personal communication, doctoral student, 2008). Networking, based on the range of Indigenous communities and nations represented by students and presenters, was an opportunity to share and gain international perspectives.

Kloshe Tillicum's annual forum acted as a regional opportunity for students to gain experience in presenting their work, in discussing ideas, in networking with other graduate students, and in conference organization. Kloshe Tillicum hosted many educational workshops, including grant writing, CBPR methods, and social events such as lunch hour talks with an elder.

Three writing retreats were held over the course of the ACADRE/NEAHR grants. At these retreats, students were provided with a location conducive to writing and access to mentors to assist in the writing process. These mentors were experts in the fields of academic writing and publication processes. Student noted that the informal sessions were particularly valu-

able as they could openly discuss their work in an unstructured format. As a group, they brainstormed ideas and solutions in ways that somewhat reproduced collaborative processes reminiscent of Indigenous communities. Structured meeting times and skill-building mini-workshops were also appreciated by the students. These supplied unexpected deadlines and thus provided students with incentive to write. Not all students were able to write in these environments. For some, the intentionality of forced writing time was too stressful to be productive. Student feedback suggested the need for a diverse approach in developing support processes and other training events.

### *Responsibility to Student—Support Challenges*

Students identified three major challenges in continuing their studies: (1) difficulty of the academic research processes; (2) lack of long-term funding; and (3) personal insecurities. These challenges provide insight into Kloshe Tillicum's unfinished work. To pursue academic health research careers, students need time unencumbered by financial or other stressors. The provision of piece-meal funding for graduate students, while definitively enhancing student career options and interest in health research and related fields, did not ensure health research careers. Sustained graduate funding is needed to build such careers.

Many students admitted to feeling intimidated in navigating academic research processes such as ethics review, research grant applications, curriculum vitae development, interviewing skills, and knowledge translation. They noted that connection with mentors provided validation. Exposure to other researchers allows students to be able to assess their own abilities and to build appropriate affect-regulation mechanisms (Evans, 2002; Hartman, 2001; King & Kitchener, 2004; Zimmerman, 2000). Kloshe Tillicum mentorship opportunities to address students' intellectual and emotional needs occurred in one-on-one sessions, at organized gatherings, and through the staff. Kloshe Tillicum's staff members were highly accessible to students and added another level of guidance and emotional support. Many students found graduate work to be exhausting and struggled with personal insecurities around being able to complete their work: "An ongoing challenge that I have identified involves my personal fears that my research will not be appropriate and/or useful" (personal communication, master's student, 2007) and "My own challenges have been/continue to be my own insecurities and self-doubt..." (personal communication, master's student, 2009). Kloshe Tillicum approached this support as invaluable to the respect and responsibility elements of the 4Rs.

*Reciprocity—Lessons Learned from the Training Program*

Of the 14 undergraduates (UG) who received awards, only three received multiple awards: two received two UG awards and one received an UG and master's award. While meeting the goal of creating a larger UG cohort—i.e., a *mass*—this group did not seek further graduate research funding. It is possible that the open competition funding model provided too random a sampling of students and/or the undergraduates were likely undefined in their career goals at this phase of their training. It is possible that a more selective process involving mentor-identified UG students with predetermined interest and aptitude in AHR could have produced more AHR graduate researchers (Dahlberg, Barnes, Rorrer, Powell, & Cairco 2008; Hunter, Laursen, & Seymour, 2007). It is also possible that at the undergraduate level, a wider net needs to be cast in the form of mandatory curricula or a large number of research mentorships, to introduce research to as many students as possible.

While creating a larger cadre of AHR students, the open competition funding model necessitated by Kloshe Tillicum's budget reduced the advantages of multi-year funding where students could conduct targeted and consistent research over a prolonged period of time. Specialists in research skill development note that metacognition, critical thinking, problem solving and skill acquisition, self-regulation, and opportunities to use the newly-acquired skills are essential to researcher training (Evans, 2002; Hartman, 2001; Hunter et al., 2007; Zimmerman, 2000). The ability of students to train in research over a period of time and in complex, real situations becomes a vital characteristic of training; this is best achieved with stable funding and associated commitment (Evans, 2002; Hartman, 2001; King & Kitchener, 2004; Zimmerman, 2000).

Students who received multi-year funding tended to pursue their research topic from one academic degree to the next, with increasing complexity in research questions. Students were chosen not only based on a high degree of probability that they would continue into an academic research career, but also on whether they had received previous funding. In general, two-year funding was received mostly by master's students while three-year funding reached mostly doctoral students. Cross-degree (from one degree to another) funding was limited to eight students of the 36. Three of four students with four years of funding received scholarships for different degrees; all of them were Indigenous students and pursued singular areas of research in an AHR career.

These results, while too limited to draw significant conclusions, suggest that cohorts can, indeed, be expedited and that AHR careers can be nurtured effectively. Some balance of the two funding models may be

needed to build scholarly AHR capacity, and further funding and study is required to determine the optimal proportion of open competition to directed funding.

Where the Students Are Now

Kloshe Tillicum’s 90 funded students graduated into a variety of careers. Twelve (13%) awardees’ careers remain unidentified and 21 (27%) currently are still students. In the unidentified category, at least four are recipients of the CRM award and could reasonably be projected to fit into the health practitioner category. One complicating factor worthy of further study for the CRM awards (intended for medical students and other health care trainees) is that we were not able to track whether the graduated medical doctors continued as clinician researchers. Given the degree of unknowns, a further study in three to five years when the remaining 21 students have graduated is in order.

When excluding the two categories where careers are unknown, secondary analysis demonstrated that 14 out of 56 (26%) of students graduating with health research backgrounds secured administrative and/or policy positions (Figure 5). This is perhaps not surprising given the low numbers of university-educated Indigenous people across Canada (8% of Indigenous Canadians between the ages of 25 to 64 have university degrees as opposed to 23% for the non-Indigenous population) (Association of Universities and Colleges of Canada, 2014). In this climate, graduates often can be recruited into high-level administrative positions

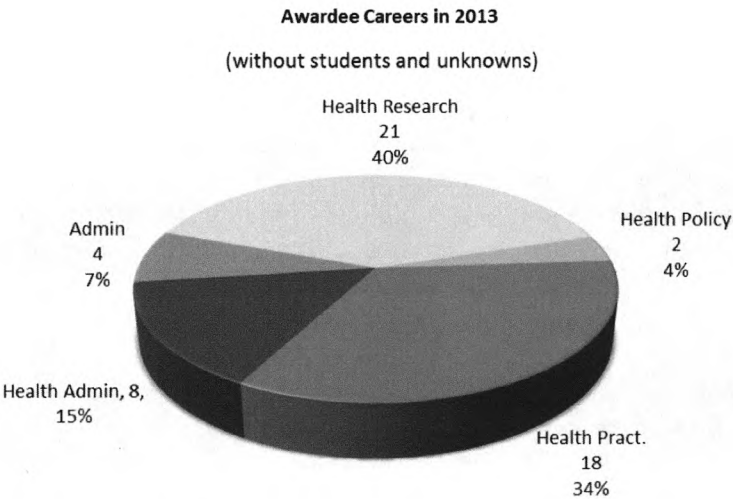


Figure 5. Awardee Careers in 2013

and sometimes in fields outside of their degree specialization. The majority of Kloshe Tillicum awardees took up careers in health research (21 out of 53, or 40%) and health practice (18 out of 53, or 34%) (see Figure 5). With health administrators added to the mix, a majority (89%) of recipients entered the health field in general. Given CIHR-IAPH's original aim of building capacity for AHR, at this point, Kloshe Tillicum can reasonably claim a trend towards the research field for its trainees. Of the 19 students who entered into formal research careers, 50% were in a university versus a health agency or private research group. In total, six of Kloshe Tillicum awardees to date have entered into an academic research appointment at a research university. This result is in keeping with Kloshe Tillicum's goal to support as many students as possible. That many students chose health practitioner/administrative/research careers is a testament to the relevance of the Kloshe Tillicum program, both for students and these fields.

### *Discussion*

Kloshe Tillicum's goal to increase capacity for AHR by supporting students was similar to international Indigenous programs across New Zealand, Australia, and the United States using its approach based on 4Rs principles. Rather than defining research methods, the 4Rs provided a template for defining research relationships with communities. Firmly placing researchers in mutual partnerships with communities meant that research methods had to be developed within the local research context, allowing students and principal investigators (PIs) to resist any singular, all-encompassing *Indigenous* research methodology. As a framework based in traditional knowledge, the 4Rs framework recognizes the diversity of traditional knowledges and insists on recognition of the differences among Indigenous nations. Consequent outcomes are a resurgence of recognition of traditional knowledge, repositioning of the roles of community as equal partners in research, adaptation of existing methodologies, and the creation and implementation of new Indigenous approaches to research. This is the environment Kloshe Tillicum students were encouraged to explore.

To ground students in preparation for that multiplicity of expectations and community responsibilities, Kloshe Tillicum's student program centred on three distinct spheres of support: financial, methodological, and social.

In funding students over ten years, ACADRE/Kloshe Tillicum discovered that at least two models of funding were necessary to develop a critical mass of AH researchers: (1) single year open-competition funding, which can rapidly increase numbers within an intellectual cohort to foster critical thinking about research methodologies/relationships and expose students to the range of career choices associated with such skills; and (2)

directed funding to students with an identified aptitude for health research, for whom a focused approach could lead to a sustained exploration and study in a chosen AHR field and subsequent academic progress and success. Such multiple factors are necessary when traversing the intellectual boundaries of accepted research models. An additional recommendation arising from the myriad of student research topics is the need to look to other partnership funding agencies and research institutions, since the strength and potential in Indigenous scholars reaches beyond Indigenous populations and health issues alone.

In terms of methodology training, students must be given the opportunity to explore their own worldviews, parallel yet independent from others, to gain their own epistemological ways of knowing. Student feedback evidenced the need for access to challenges to conventional research thinking, to develop innovative relevant research methods. While the international Indigenous academy—both inside and outside the borders of Canada—was instrumental in directing students' thinking towards diverse *Indigenous methodologies* through networking, conferences, sharing program information, and publications, students needed frames to develop local community-specific research processes. For Kloshe Tillicum's awardees, the 4Rs served in that over-arching capacity by outlining the guidelines for research relationships which could then be used to elicit distinct localized community-based methodologies. Further challenges from the international Indigenous academy on methodology could include instruction in translating Indigenous knowledge relationships from epistemology to concrete localized research methods. Furthermore, to foster idea exchange, students need ongoing opportunities to interact on an international level.

One of the benefits of networking opportunities for students was the social support provided. Students appreciated access to relationships with senior researchers, staff, and peers. Since Kloshe Tillicum students noted that their own personal fears were a limiting factor in their graduate work, and given that they repeatedly suggested networking processes as a program improvement, a level of social support is indicated in any program designed for student enhancement. Zimmerman (2000) and others (Evans, 2002; Hart-Wasekeesikaw & Gregory, 2009; Hunter et al., 2007; McCormick & Green, 2012; Rabinowitz et al., 2001; Tunison, 2007; Zepke & Leach, 2005) note that these personal fears can lead to problems with *affect* or emotional regulation for students. Often an overlooked priority in such programs, the inclusion of training to manage emotional responses that will inevitably arise in response to academic situations is indicated here as well. On a similar front, it may be useful to develop programming that identifies potential student stressors and conflicts, with tools to address these.

This paper respectfully excludes comment on individual Indigenous spiritual traditions but notes here that these were deemed valuable and necessary by KT student trainees. It is perhaps the next frontier for the international Indigenous academy and its allies to determine if and how such practices may be included in scholarly discussions.

Transmitting any lessons learned in this evolving program to the international Indigenous academy will be challenging since Kloshe Tillicum's student training program was interrupted. In ten years, 32 of 53 awardees in established careers undertook administrative and health practitioner positions. This may be in part due to the known vacuum in the health workforce of professional Indigenous health workers. Arguably, until that demand is filled, the numbers of AHR-trained students entering research professions may remain low. It remains to be seen whether the six academic research positions taken by Kloshe Tillicum awardees in BC is a *critical mass* sufficient to increase and sustain an appropriate AHR research presence, not to mention the challenges of the Indigenous academy having to bridge the international Indigenous community. Therein lays sustainability that has yet to be measured: how successful will our new Indigenous academics be in carrying the weight of multiple careers and fulfilling the expectations of representing multiple communities? More research and discussion about developing critical mass in AHR is needed—perhaps not in terms of a specific number, but, rather, in terms of sustainable capacity, impacts, or outcomes, that could bring academic institutions closer to what is needed to meet the needs for improved Indigenous health.

Kloshe Tillicum constituted an important cultural bridge between Indigenous students, focusing on AHR and the research agencies that will support further Indigenous research. Without this bridge there is concern that the number and subsequent successful applications of Indigenous students will decrease. Perhaps, then, the primary lesson learned is that the work of the Network Environments for Aboriginal Health Research (NEAHR) is far from over. Over the years, Kloshe Tillicum respectfully took up one of the challenges laid down in the CIHR-IAPH vision to begin the long trek towards building a cadre of Indigenous researchers skilled in relevant community-based processes and methods. As CIHR NEAHR programs sunset in 2014, we think of the students who also took up the challenge. While similar Indigenous graduate training programs continue to exist internationally, the sun-setting of Canada's NEAHR represents a significant loss of opportunity for Indigenous scholars. Collectively, we all share a responsibility to carry on the journey. Our path ahead lies open, unfinished, and interrupted.

### Notes

<sup>1</sup> This paper uses Kloshe Tillicum or ACADRE/Kloshe Tillicum to collectively refer to the graduate training activities of all of the noted centres in British Columbia from 2002 to 2014.

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