Participatory Action Research for Indigenous Linguistics in the Digital Age

Marie-Odile Junker, Carleton University*

Abstract / Introduction

In this paper, I reflect on my journey as a linguist exploring new methodologies when working with speakers of endangered languages in the era of digital technologies. I show that adopting a participatory action research framework can lead to unexpected positive developments. I also show how information technologies have allowed us to reach and engage a large community of speakers. Asking questions like "how do I make my intervention as a linguist in a language community support the maintenance of this language and empower its speakers?" led to the creation of several collaborative websites for Cree and Innu languages (see below), to an Algonquian Linguistic Atlas (www.atlas-ling.ca) and to our current collaborative project entitled: A digital infrastructure for Algonquian Languages: Dictionaries and Linguistic Atlas. This project now includes 11 participating dictionary teams and many communities of speakers sustaining each other.

1. Participatory Action Research in Linguistics

Life journeys are often guided by a question and end up being more about the path taken than the answer found. As a new graduate in Linguistics, I joined an

* I am grateful to the many individuals, community language activists, and kindred-spirits across disciplines who have made my Participatory Action Research journey possible. The list of names would be too long to include here, but can be found on the Credits sections of the various websites cited. Writing of this paper was partially funded by the Social Sciences and Humanity Research Council of Canada (SSHRC) grants # 35-2014-1199, 611-2016-0077 and 890-2013-0022. Thanks to Claire Owen for proofreading my non-native English and to two anonymous reviewers for their valuable comments.

interdisciplinary group exploring Participatory Action Research (henceforth PAR) (Manoukian, 1990; Smith, 1999; Morris & Muzychka, 2002; Chevalier & Buckles, 2013a), in my post-doc year in 1992 at Carleton University. PAR seeks to understand the world by trying to change it, collaboratively (see Fig. 1 below). PAR was very new to me, and some of its key ideas seemed the opposite of what I had been taught: the focus was on the research process, and this process was more important than the goal. The research "subjects" were partners and could define the topic(s) of research. This paradigm challenged how I had learned to set goals, define results, and publish them. It questioned scientific neutrality and impartiality. I was the only linguist; all the others were psychologists, medical doctors, anthropologists, or international development experts. They were considering mental health patients, Indigenous people, or illiterate women in the Congo as valid research partners, capable of formulating and answering valid research questions that would positively impact their lives. I quickly learned that Linguistics had not been on the PAR agenda and vice-versa[1].

[1] See Junker (2002) and Czaykowska-Higgins (2009, this volume). Like Benedicto (this volume), I do not make a strong distinction between PAR and CBR, except perhaps that PAR's focus on action goes a little bit further in calling you to the Gandhian stance: "Be the change that you wish to see in the world". This "activist" dimension challenges the culture, practices, power and role of Academia itself, as seen clearly in Benedicto's paper. It can also challenge the governing cultures of partner organisations.

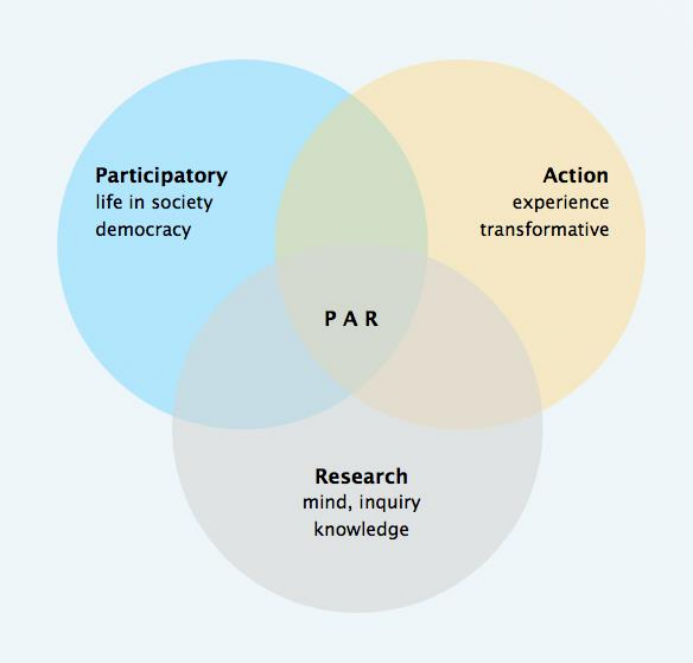

Fig. 1: Participatory Action Research (from Chevalier & Buckles, 2013b: p.2).

This led me to formulate the following question for myself and my field: “How do I make my intervention as a linguist in a language community support the maintenance of this language and empower its speakers?” I did not know how, I just started paying attention. At the time I was working on noble theoretical questions like quantification in natural language. I had ventured outside most commonly-known languages on which most theories were based, and was curious to see if our findings held up in lesser-known or lesser-documented languages. I started listening to my elicitation sessions, paying attention to what the speakers were really saying, those little hesitations, comments, sighs, and moments of waning or waxing interest. I started sharing my hypotheses, and getting the speakers’ insights. I started commenting on what I found beautiful in the language, and paid attention to how a speaker felt after a work session with me. I focused more on the quality of the experience for them (which was not always successful, of course) and started looking for what speakers thought would be useful to them and their

community[2]. I had entered the PAR framework and was practising it[3]. After I became an associate professor, I decided I would follow my heart and not worry about promotion anymore. This changed my life.

2. A Journey into Information and Communication Technologies

2.1 The eastcree.org website and research with East Cree communities

By the mid-1990s, the Crees in Quebec, who had obtained their own school board[4], had made Cree the official language of instruction from kindergarten to grade three. There was a great need for teaching resources in the Cree language, with the challenge of serving nine different communities separated by hundreds of kilometers (Fig.2).

[2] One of my first attempts included publishing a linguistic paper in Cree, co-written with my East Cree language consultant. I am grateful to John Nichols, editor of the *Papers of the Algonquian Conference* to have being open to the idea, despite the technical challenges of the syllabics at the time. See Blacksmith and Junker (2001). Louise Blacksmith's name appears first on the Cree version, mine on the English version. The exercise of writing linguistic description in Cree in such a non-traditional genre for Cree, gave us very interesting insights into the language itself and forced us to be simple and clear in English. It was also the start of developing grammatical terminology in Cree for the teachers. See Benedicto (this volume) on the hegemony of English as an academic language.

[3] As a PAR practicioner, I have chosen to write this chapter as a personal narrative, so that it could be read by the Indigeneous language speakers I work with. For that I am using a genre that can easily be translated into Cree, Innu or Atikamekw, known as *tipâchimuwin*.

[4] The *James Bay And Northern Quebec Agreement* (in French: *La Convention de la Baie James et du Nord québécois*), signed in November 1975, provided for the establishment of the *Cree School Board* and the *Cree Board of Health and Social Services of James Bay* serving Cree communities in Quebec.

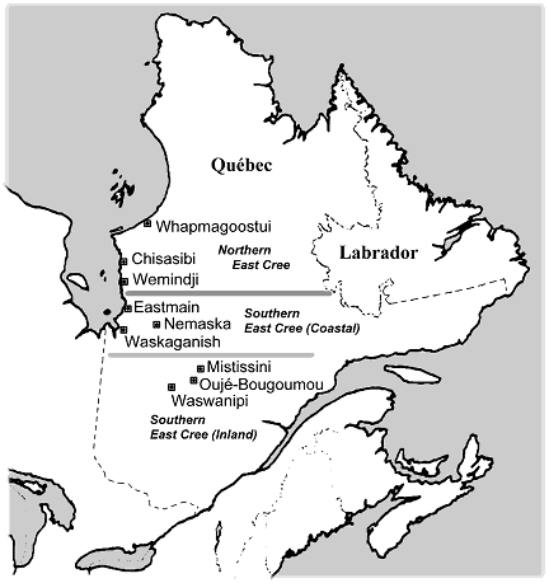

Fig. 2: Map of Cree communities in Quebec, Canada.

One of these needs was for an East Cree grammar, which I started working on, guided by the PAR framework, trying to co-write it with Cree speakers in a way that would be accessible. Information technology and the internet were quickly developing, and although internet connections were slow and unreliable, the Canadian government had made it a priority to network the North. I bet on them keeping their promises, and launched in 2000 the eastcree.org website with Louise Blacksmith, a Cree speaker with whom I was working. Our goal was to offer an online grammar and other language resources needed for the Cree teachers and students. The idea (new at the time) was that the grammar could be interactive, contain oral material and be modified as we discovered more. The Cree Programs department of the School Board joined us right away as official partner, and we went on developing online resources together ever since. In 2004, we launched an online dictionary (Junker et al. 2004-present)[5]. We graduated from simple

[5] The online dictionary has had many editorial team members over the years. We reference it as (Junker et al. 2012), date of the last major revisions. It also includes the Cree thematic dictionaries (Visitor et al., 2013) and has integrated links to grammatical resources (Junker (Ed.), 2000-present).

HTML pages to web database design. The success of the online dictionary surprised us. The first year, about 5000 words were looked up, but we soon reached an average of over 1000 words per week (>55,000 annually), which is remarkable for a language of 12,000 speakers. Despite the limited number of speakers who know how to write the language, the number of searches in Cree is very high. It is facilitated by search engines that we developed to allow for various orthographies (Junker & Stewart, 2008), taking into account our targeted users' abilities and difficulties.

One of the most beautiful aspects of PAR is that you do not know in advance what will happen. You go from academic researcher to group facilitator, to coordinator, and you end up teaching things you just learned a few months before, as needed – not what you learned during your PhD years. The Oral stories database is such an example. I had toured most Cree communities in the summer of 2002, meeting with language specialists, from one of these discussions arose the concern that copies of old recordings of elders left behind by anthropologists would be lost. It had struck me that, while the traditional mode of transmission was mainly oral, writing the language and teaching the writing system was the primary focus of instruction. At that time, I was grappling with the question of how information technology could be of service to predominantly oral cultures. From our discussion came the idea that stories had to be available to teachers in a way that would support traditional oral transmission, and perhaps allow new developments like doing comparative oral literature. For that, we digitized the recordings and I ran a series of sound editing workshops in which we developed Cree-based categories to tag the stories. We developed a searchable database[6] where the stories could be listened to and downloaded. Those sound editing and database entry workshops were

[6] See: stories.eastcree.org

held in several Cree communities and included participants such as Cree curriculum developers, language consultants, high school drop-outs and radio station employees eager to learn about digital technology. Elders walked in, asking to be recorded and featured in the database. Other academics who had older recordings volunteered their material to be added. The database grew to include over 500 stories (Junker & Luchian, 2007). Finally the editorial management was fully transferred to Cree Programs in 2008.

Other eastcree.org developments follow a similar pattern of bringing together people with converging interests: the terminology forum was developed to host the results of terminology workshops, where both health professionals and Cree consultants from the Cree education and health organisations were brought together to develop medical terminology in Cree (Junker et al., 2005, 2016). The educational resource catalogue is a tool for inventory, distribution and information about Cree books, that also provides reading in Cree on the web via the book descriptions[7]. Interfaces in Cree help promote standard orthography and surfing the web in a Cree environment.

Challenges have been many: the initial difficulty of having syllabic characters on the web (Harvey, 2004; Jancewicz & Junker, 2011), continuing software and browser updates, internet access, and recently the challenge of app development with its constant industry-driven updates, have forced us to always look for new solutions and collaborations. Capacity building in the Indigenous communities has been essential, not only for language description and documentation, but also for technology, including training the IT support staff serving the Cree communities. The politics of language within Cree institutions, where the Cree language can be both at the heart of healing and

[7] See: catalogue.eastcree.org

sometimes a festering wound of shame and self-hatred, has not made the work easy. What has worked, though, is to gather people of good will and find a common vision or common interests, sometimes across institutional boundaries, in order to create the community of speakers and language lovers that moves things forward.

2.2 Innu language documentation

The eastcree.org website experience attracted requests from other language groups. In 2004, I started working on an online pan-Innu dictionary in a Community-University Research Alliance grant[8] that soon led to other projects. In 2009, Innus from Institut Tshakapesh joined the Crees for an online language lessons development workshop I was holding at Carleton University (Junker & Torkornoo, 2012). This led to the development of a series of Integrated Web Tools for the Innu language (Junker et al., 2016). The Innus went further than the Crees in populating their oral stories database with new material: audio and video[9]. They also asked us to help develop a catalogue of language resources and train their staff to help them manage their sales[10]. Again, my role was to facilitate the various projects and fill in where resources or skills were not available in the Innu communities. Not only was the governance structure of the Innus quite different, but the people in charge of language had very different backgrounds and training[11]. So we had to adapt and be resourceful. Again, the PAR framework helped figure out what was needed and when; as well as what was no longer needed. For example, we developed standard

[8] CURA grants are large 5-year grants of the Social Sciences and Humanities Research Council of Canada. This particular one (2005-2010, PI Marguerite MacKenzie) encompassed Innu communities in both Quebec and Labrador (www.innu-aimun.ca).
[9] See: histoires.tshakapesh.ca
[10] See: catalogue.tshakapesh.ca
[11] Unlike the Cree from James Bay, the Innu do not have their own School Board. The Institut Tshakapesh is a cultural organisation that groups most Innu bands and aims to serve all Innus in Quebec. The colonial language they speak is French, while the Innu in Labrador tend to speak English. Thanks to the collaborative structure established across provinces through the CURA project for the dictionary, web resources are now developed in collaboration with the Labrador Innus whenever possible.

instructions for video documentation that was taking place in the communities. We sent our project technician to meet and visit the technicians serving the schools. In March 2017, we completed a training in video editing so that the entire documentation, editing and publishing process is now in the hands of our partner, the Institut Tshakapesh. We remain available for support. In the community of Ekuanitshit we recently guided the creation of a language lab tailored to using the resources we had developed. None of this had been planned in advance; the need arose and we responded. But what started to happen was a synergy between various language groups having similar needs to maintain their language.

2.3 The Algonquian Linguistic Atlas

The first sign of this convergence of needs and goals happened in 2004 when the Linguistic Atlas was born. In 2002, I had created a simple *Cree Conversation* CD and manual (Junker et al., 2002), with some Cree students who I had hired for the summer to work on a long-term database project for East Cree Verb Paradigms. I wanted those young people to see something concrete come out of their summer job – the Verb Paradigms did indeed take us another 12 years! (See Junker & MacKenzie, 2015a-b). Soon I got requests from other groups to adapt the CD to their language. I shared all my material with them in exchange for them returning their new sound files to me and letting me share them on an interactive map[12]. In 2005, Google Maps came out and the technology was there for us to develop an interactive Atlas (Junker & Stewart, 2011).

[12] I would like to credit here two Cree women, whose names I don't remember, who drove me back to the airport after a language conference in Prince Albert in 2004 where I had been invited to speak about the eastcree.org website and offer a workshop on language and technology. We were talking about conversation recordings we had made at the conference and a map I had shown of the language family to which they were unaware they belonged. Suddenly the idea of "map+sound" flashed in my head, as a tool for connecting, healing the broken links between distant relatives separated by colonial provincial divisions.

Because it was based on a conversation CD, and because its most important goal was to bring together linguistic groups that had been artificially divided by colonial history, the Linguistic Atlas was developed more from a language-activist's than a dialectologist's perspective. It contains words, phrases, sentences, short stories and songs. Equivalent phrases are not based on etymologies, but on pragmatic situations. It fosters language preservation and transmission, and connects groups facing similar challenges to preserving and maintaining their language. At the end of 2016, the Atlas featured 47 languages and dialects, 52 speakers and over 19,000 sound files (Fig 2). Unforeseeably, many urban Indigenous people and some of Indigenous descent use it to reconnect with their roots[13].

[13] A Cree mother recently reported to us that her son, attending school down south, downloaded the Cree conversation app on his phone to play phrases from his community before going to sleep in order to lift his spirits.

Fig. 2 The Algonquian Linguistic Atlas (from www.atlas-ling.ca: Junker, ed. 2005-2018)

2.4 Algonquian online dictionaries and web resources

The Atlas also had the effect of bringing together academics and language activists involved in making dictionaries. In recent years, a team of Algonquianists has come together to develop a common digital infrastructure for Algonquian dictionaries that would allow for sustainable maintenance of those minority language resources in the digital economy. The collaborative research model builds on PAR insights and on information and communication technologies to document Indigenous languages of the Algonquian family and to offer online resources for the communities in question[14].

This group effort allows for transfer of expertise, shared open-source technological and resource development, and shared pedagogical and documentation approaches. Long-term capacity building is happening between academics and communities of speakers. The connections fostered are among academics; between academics and Indigenous organisations, communities and individuals; and importantly, among Indigenous people

[14] See: resources.atlas-ling.ca

themselves. To give a few examples of such collaborative community-to-community spin-offs: Innus are adapting a collection of East Cree books to Innu, and Atikamekws are developing read-along books together with Innus. Forays into medical terminology development for Labrador Innu (MacKenzie et al., 2014) inform similar terminology development for the whole Cree continuum. A recurring challenge for Indigenous language resource development is lack of continuity due to financial and institutional instability. Our working together allows us to bridge some gaps by "piggy-backing" on each other until the tide turns again. Also, the outreach of information technology can be very powerful, and some of our Indigenous partners have done a great job using Facebook pages and community radio networks to promote language work[15].

As more commonalities emerge, problems can be solved more quickly and our successes can inspire and empower each other. Each group and each participant tends to bring their own strength to the collaboration. I find it remarkable that people are so willing to share their knowledge, successes and even mistakes in a transparent and non-competitive way – beyond the good-natured rivalries and pitches about our respective institutions, we are not in competition with each other, but in a shared race to tackle common challenges such as language endangerment, education, and cultural survival.

Conclusion

Participatory Action Research (PAR) and Information and Communication Technologies (ICT) are a perfect match. The process-oriented, consultative, collective nature of PAR and the availability, diversity-enhancing and outreach qualities of ICT, especially towards youth, are meant to work together. It is because of ICT that our work

[15] See for example the Institut Tshakapesh Facebook page entitled: Innu-Aimun.

has reached so many more people, across and outside the ivory tower of academia. It is because of PAR that I keep asking if – and ensuring that – the technological and linguistic tools we are developing are really enhancing the well-being of our communities of speakers.

My journey into PAR has made me extremely grateful to have been part of something unfolding that seems much greater than myself. I have learned so much from my Indigenous and academic partners, encountered amazing people, surfed on the cusp of a technological revolution, and ridden a wave of change where many things are truly intangible, but deeply rewarding.

References

http://www.participatoryactionresearch.net/

Benedicto, Helena. (this volume). When Participatory Action Research (PAR) and **(**Western) Academic Institutional Policies do not align.

Blacksmith, Louise & Marie-Odile Junker. 2001. ᐁ ᐊᓯᒡ ᐋᔅᑌᒡ ᒉᒀᓐ, ᐯᔅᒃ ᐊᐍᓐ ᐁ ᐋᔅᒨᒫᑲᓅᑦ ᐁᒄ ᒫᒃ ᐊᓂᔫᐦ ᐃᐦᑐᐎᓐ ᐊᔅᒧᐎᓐ ᐍᐤ ᐁ ᐯᐦᑖᑯᐦᒡ᙮ (Oviation, Coreference and Relational verb forms in East Cree.) In John Nichols (ed.) *Actes du trente-deuxième Congrès des Algonquinistes* /*Papers of the 32nd Algonquian Conference*: 264-268. Winnipeg: University of Manitoba.

Chevalier, Jacques M. and Daniel J. Buckles. 2013a. *Participatory action research : theory and methods for engaged inquiry*. New York, NY : Routledge. 469 p.

Chevalier, Jacques M. and Daniel J. Buckles. 2013b. *Handbook for Participatory Action Research, Monitoring and Evaluation.* Ottawa: SAS2 Dialogue. Available from: http://www.sas2.net/sites/default/files/sites/all/files/manager/Toolkit_En_March7_2013-S.pdf

Czaykowska-Higgins, Ewa. (2009). Research Models, Community Engagement, and Linguistic Fieldwork: Reflections on Working within Canadian Indigenous Communities. *Language Documentation and Conservation*, *3*(1), 15-50.

Czaykowska-Higgins, Ewa., Xway'Waat Deanna Daniels, Tim Kulchyski, Andrew Paul, Brian Thom, S. Marlo Twance, Suzanne C. Urbanczyk. (this volume). Consultation, relationship and results in Community-Based Language Research.

Harvey, Christopher. 2004. "Unicode as a Standard Framework for Syllabics and Other Special Characters" in H.C. Wolfart (ed.) *Papers of the 35th Algonquian Conference*, pp. 125-136. Winnipeg: University of Manitoba.

Jancewicz, Bill and Marie-Odile Junker. (2011). Cree syllabic fonts: development, compatibility and usage in the digital world. In Karl S. Hele & J. Randolph Valentine (eds.) *Papers of the 40th Algonquian Conference*, pp. 118-132. Albany, NY: SUNY Press. (Conference held in October, 2008).

Junker, Marie-Odile. (2002). Participatory Action Research in Linguistics: What Does it Mean? / La recherche participaction en linguistique: Enjeux et significations. Presented at: Session on Ethics of Archiving Languages and Fieldwork, organized by the Aboriginal Language Committee, *Canadian Linguistics Association Annual Congress*, University of Toronto.

Junker, Marie-Odile (ed.). (2009-2018). *Algonquian Linguistic Atlas*. Available from https://www.atlas-ling.ca/. (formerly: *Cree-Innu Linguistic Atlas*: 2005-2008)

Junker, Marie-Odile (ed.) (2000-2018). *Eastcree.org*. Available from https://www.eastcree.org/

Junker, Marie-Odile, Louise Blacksmith, Marguerite MacKenzie, Luci Salt and Annie Whiskeychan. (2002). *Cree conversation Manual/ Manuel de conversation crie*. Edited by M.-O. Junker. Available from https://www.atlas-ling.ca/ and https://www.eastcree.org/pdf/CreeConvManualCol.pdf/

Junker, Marie-Odile (ed.). (2002). *Cree conversation crie - iinuu iyiyuu ayimitaau*. [CD ROM]. Chisasibi, QC: Cree School Board

Junker, Marie-Odile, Yvette Mollen, Hélène St-Onge and Delasie Torkornoo. (2016). Integrated Web tools for Innu language maintenance. In MacCauley, M., M. Noodin & J. R. Valentine (eds.) *Papers of the 44st Algonquian Conference*, pp. 192-210. Albany, NY: SUNY Press. (Conference held in October, 2012).

Junker, Marie-Odile and Delasie Torkornoo. (2012). Online Language Games for Endangered Languages: jeux.tshakapesh.ca, www.eastcree.org/lessons. *Proceedings of EDULEARN 12: International Conference on Education and New Learning Technologies*. Barcelona, Spain. pp: 6662-6673.

Junker, Marie-Odile and Terry Stewart. (2011). A Linguistic Atlas for Endangered Languages: www.atlas-ling.ca. *Proceedings of EDULEARN 11: International Conference on Education and New Learning Technologies*. Barcelona, Spain. pp: 3366-3377.

Junker, Marie-Odile and Terry Stewart. (2008). Building Search Engines for Algonquian Languages. In Karl S. Hele and Regna Darnell (eds*). Papers of the 39th Algonquian Conference*. London: University of Western Ontario Press, 378-411. Updated version available from http://www.marieodilejunker.ca/pdf/JunkerStewart2008-PAC39.pdf

Junker, Marie-Odile & Radu Luchian. (2007). Developing web databases for Aboriginal language preservation. In *Literary and Linguistic Computing* 22(2), 187- 206. Originally published online on December 8, 2006 doi:10.1093/llc/fql049

Junker, Marie-Odile and Marguerite MacKenzie. (2015a). *East Cree (Southern Dialect) Verb Conjugation* (4th ed.). Available at: https://southern.verbs.eastcree.org.

Junker, Marie-Odile and Marguerite MacKenzie. (2015b). *East Cree (Northern Dialect) Verb Conjugation* (4th ed.). Available at: https://northern.verbs.eastcree.org.

Junker, Marie-Odile, Marguerite MacKenzie, Luci Bobbish-Salt, Alice Duff, Ruth Salt, Anna Blacksmith, Patricia Diamond & Pearl Weistche. (eds.). (2012). *Dictionnaire du cri de l'Est de la Baie James sur la toile: français-cri et cri-français (dialectes du Sud et du Nord)* (3rd ed.). Retrieved from https://dictionnaire.eastcree.org

Junker, Marie-Odile, Marguerite MacKenzie, Luci Bobbish-Salt, Ruth Salt, Anna Blacksmith, Patricia Diamond & Pearl Weistche (eds.). (2012). *The Eastern James Bay Cree Dictionary on the Web : English-Cree and Cree-English (Northern and Southern dialects)* (3rd ed.). Retrieved from https://dictionary.eastcree.org

Junker, Marie-Odile (ed.). (2003-2016) *East Cree Terminology Forum* https://terminology.eastcree.org . Coedited with Mimie Neacappo since 2015.

MacKenzie, Marguerite, Elizabeth Dawson, Robin Goodfellow-Baikie & Laurel Anne Hasler (eds.). (2014) *Innu Medical Glossary.* Sheshatshiu, Labrador: Mamu Tshishkutamashutau - Innu Education Inc. 245 p. Also available as app at: http://www.innu-aimun.ca/english/download-the-apps/

Manoukian, Violetta. (1990). *Participatory development: paradigm shift in theory and practice*. (Master's thesis). Carleton University, Ottawa, Ontario.

Morris, Marika and Martha Muzychka. (2002). Participatory research and action: A guide to becoming a researcher for social change. Ottawa: CRIAW-ICREF.

Smith, Linda Tuhiwa. (1999). *Decolonizing methodologies: Research and indigenous peoples*. New York, NY: Zed Books.

Visitor, Linda, Marie-Odile Junker and Mimie Neacappo (eds). (2013). *Eastern James Bay Cree Thematic Dictionary (Northern Dialect).* Chisasibi, QC: Cree School Board.

Visitor, Linda, Marie-Odile Junker and Mimie Neacappo (eds). (2013). *Eastern James Bay Cree Thematic Dictionary (Southern Dialect).* Chisasibi, QC: Cree School Board.