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## **Towards the enhancement of Arctic digital industries: 'Translating' cultural content to new media platforms**

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### **ABSTRACT**

This paper proposes a preliminary framework for digital 'translation' attempting to, (while cognisant of conceptual limitations embedded in this model) localise aspects of Inuit knowledge, culture and IQ (in the sense of Inuit *Qaujimajatuqangit*) into digital artifacts for new generations of Inuit and non-Inuit learners. In addition to delineating challenges and opportunities based on theoretical models and actual projects currently underway in Nunavut and Nunavik, it proposes developing Arctic digital industries through convergent cultural media. Finally, it encourages US and Canadian governments during this four-year North American governance cycle of the Arctic Council (two years each for Canada (2013-2015) and the United States (2015-2017) to invest in digital infrastructure, from both a humanistic (via training) and technological perspective. Conceptually, the article argues that culturally focused circumpolar digital development is fundamental to fulfilling the language of the Canadian and US Arctic Strategies, indicating the importance of validating the cultures and voices of the 'People of the North'. It warns against potential post-colonial dangers inherent in digital training, and concludes by arguing that based on current increased global focus on the resources and geo-strategic possibilities inherent in the Arctic (accelerated by global warming and augmented militarisation of the North), that the time is pivotal to ensure that digitally localised and disseminated voices of the Inuit and circumpolar indigenous voices are available electronically in the widest possible variety of media forms.

### **KEYWORDS**

Arctic digital industries, computer-mediated sociocultural communication, Inuit/Inuktitut, digital translation, critical Arctic studies, circumpolar (Arctic) cyberinfrastructure, Nunavut, Nunavik, Inuit *Qaujimajatuqangit*, digital divide, sociocultural data localisation, mobile app development.

## **1. Introduction**

### **Background to the paradigm – Media convergence and minority culture**

Initial work that assisted in conceptualising aspects of this paper first began in 2007, when I lived with an Inuit family in the community of Inukjuaq, Nunavik (Arctic Quebec) on the Upper East Coast of the Hudson Bay., In addition to studying Inuktitut, my goal there was to investigate impacts of social networking and digital communication on language vitality in the community. What I found was that language loss and cultural dissipation was proceeding at an extraordinary pace; when interviewing community members I regularly heard statements such as: "I speak to my son in Inuktitut, but he only answers in English" (Pasch, 2010) I have argued that language and identity loss due to digital media influx was potentially correlated to some extent with significant social challenges existing in Northern Communities. While beyond the scope of this article, aspects of these social issues are described in scholarly

literature including (Hicks, 2007; Kral, 2012; Lehti *et al.*, 2009; Muckle *et al.*, 2011; Sharma *et al.*, 2010).

More recently, I have been involved in digitising interviews with elders who have described that despite their desire to do so, they are simply physically unable to travel to enough schools, and to personally work with sufficient numbers of the younger generation, to preserve aspects of the Inuit language and culture that they view as essential to identity, survival, and growth.

Cultures certainly no longer exist in either spatial or temporal vacuums. In order to ensure cultural and linguistic viability for the long-term, especially for minority cultures, I argue that it has become paramount for lesser known or non-majority cultural groups to become digitally proactive in order to maintain sociolinguistic vibrancy. As majority media continues to saturate digital communication to the highest extent of possible bandwidth, it is becoming increasingly apparent that majority languages such as English and Chinese are, by simple realities of population density and availability of content, dominating communication on the planet: and diluting lesser-known vocabularies, knowledge forms, and fundamental theoretical conceptualisations of meaning, (not to mention exacerbating concerns related to democracy, representation, and identity worldwide) (Bach 2013; Cooper 2007; McChesney 2013, 2014; Morozov 2011; Pickard 2014).

The *hardware*-based Digital Divide is arguably becoming less of a factor keeping certain individuals 'out of the digital conversation' due to the increasing availability of inexpensive mobile devices and computers, (including reaching the \$100 mark on laptop computers, the Negropontian indicator of the ability to 'bring computing to the masses'): a concept that brings with it both potentially enormous benefits and deep ethical concerns (McConnaughey *et al.* 2013; Stoloff 2013; Warschauer and Ames 2010). At the same time however, although the technological barrier to computational *hardware* access may be diminishing, I argue that the Digital Divide of content, and especially digital disparities in *cultural* components of content, is increasing radically.

As can be seen in the United States, where only approximately five mega-conglomerates control much of the media broadcast nationally (Bagdikian 2014; Cooper 2007; Pickard 2014), so too on a global scale, I posit that we are witnessing equally significant convergences of media interests, and a concomitantly dramatic loss of traditional and minority language and culture. It argue that it is incumbent upon minority groups to learn and utilise new media platforms in order to create a cultural scaffold from whence to transmit socio-linguistic information to a new generation, who are extraordinarily rapidly becoming accustomed to acquiring knowledge digitally: often at the exclusion of more traditional media delivery systems (Dunkels 2010; Katz *et al.* 2014).

In order to work towards the enhanced involvement of the Peoples of the North in the sociopolitical arena of Arctic international negotiations that we see increasing so rapidly, I suggest that the voices of the elders be increasingly 'translated' to a new generation of youth and broadcast on a large scale, before such time as Elders are no longer able to share their collective knowledge and wisdom related to future directions of the North.

## **2. Human dimension of Canada's Arctic Foreign Policy**

The Human Dimension of Canada's Arctic Foreign Policy is a highly political yet potentially auspicious location from which to begin a discussion of enhanced new media dimensions in the Canadian Arctic. In the Government of Canada's Arctic Foreign Policy statement, we find the following phrases focusing on language, culture, and potential applicability to digital industries in the North:

Canada's commitment to Northern economic and social development includes a deep respect for indigenous traditional knowledge, work and cultural activities; Going forward, Canada will promote a better understanding of the interests, concerns, culture and practices of Northerners; ... encouraging a greater understanding of the human dimension of the Arctic. Creating a dynamic, sustainable Northern economy and improving the social well-being of Northerners is essential to unleashing the true potential of Canada's North. (Canada Arctic Policy: 10)

From the American side of Arctic Policy, the 'National Strategy for the Arctic Region' document contains the following language:

We seek an Arctic region that is stable and free of conflict, where nations act responsibly in a spirit of trust and cooperation, and where economic and energy resources are developed in a sustainable manner that also respects the fragile environment and the interests and cultures of indigenous peoples. We will endeavor to do no harm to the sensitive environment or to Alaska native communities and other indigenous populations that rely on Arctic resources. [... We will] Increase Understanding of the Arctic through Scientific Research and Traditional Knowledge (United States National Strategy for the Arctic Region: 4).

As both Canada's and the United States' Arctic Strategy documents and Council Chairmanship focus areas describe the ideas of Sustainable Arctic Communities and Economies incorporating traditional ways of life and local knowledge for wellness, I posit here that culturally-oriented digital convergence efforts focused on technical training for Northern residents with the development of local expertise, while (for non-Inuit/Alaska Natives) avoiding post-colonial paradigms related to visions of technological superiority that may be inadvertently held by visitors to the North, are components of a sustainable, humanistic approach to consider during the North American cycle of the Arctic Council. Projects such as the Pew Charitable Trusts related to protecting life in the Arctic are just some examples of organisations realising the enormity of cultural knowledge

that may be lost through environmental, media-oriented, economic, and other factors.

The model discussed in this paper proposes digital training in Arctic communities for the People of the North. Rather than non-Inuit/Alaska Native identity technicians and researchers producing content *for, or on behalf of* the communities, training Northern youth and Elders alike to utilise software and function as technical and digital leaders *in their own right* (such as the Arviat Film Society at Nunavut Arctic College is doing with the Adobe Youth Voices Initiative). This is a means of beginning the crowdsourcing of localised cultural production in Inuktitut or in whichever language is most suitable or appropriate for the Arctic region where the training is taking place. It is produced by youth and elders alike.

Looking at digital production in Inuktitut (led by Inuit) built on a platform of enhanced Arctic digital cyberinfrastructure, including training in and knowledge of coding and software development environments, audio capture and production, still image and non-linear film editing, textual outlay (roman script and syllabic), and game and mobile application development (with distribution via dynamic web and social networks), can serve as powerful mechanisms for broadcasting linguistic and cultural meaning, generating pride and an enhanced sense of self-worth in Northern Communities, and can (I argue) strongly combat some of the social ills currently plaguing Northern communities.

Research linkages between language documentation and conservation and cultural diversity are the subject of many studies (Evans 2011; Galla 2009; Grant 2012). Digital linguistic and cultural preservation technology best practices also reiterate that “technologies, such as audio recording, video and photography, have been essential in preserving large amounts of precious intangible cultural heritage” (Zhou *et al.* 2012).

### **3. Changing digital preferences in the Arctic**

A recent survey conducted by the Pangnirtung (Nunavut)-based digital mobile app development group Pinguaaq (meaning ‘play’ in Inuktitut) related to Internet use in High School age users in the Canadian Arctic (Pinguaaq 2014), resulted in a detailed report graphically illustrating changing digital preferences of Inuit youth in Nunavut.

In this 2014 report, English is (by degrees of magnitude) revealed as the predominant language indicated by high-school age youth in Nunavut as preferential online, with Inuktitut use in comparison seen as a very small percentage of overall linguistic preference in digital communication in the Canadian North. These digital linguistic preferences may reflect to some degree the technical challenges in utilising Inuktitut online as end-users (issues related to Unicode fonts, unlocalised desktop applications,

keyboards with syllabics taped over QWERTY keyboards, language exclusion from operating systems etc.). Although translation/localisation efforts have been made towards incorporating Inuktitut into alternative, open-source operating systems such as the Linux-variant Ubuntu (Pasch *et al.* 2013), it would be remiss to neglect the *content-based* limitations related to the dearth of Inuktitut-based topic matter currently available for access on the web as a whole. Culturally-specific digital content challenges include not only the scarcity of content available in Inuktitut on desktop platforms, but also in mobile applications (including games); and legacy media (sparse availability of historical content in their original Inuktitut format for streaming/download via newer platforms).

#### **4. Limitations of Arctic cyberinfrastructure exacerbating content scarcity**

Up until and including the time of this writing, cellular data connectivity in the Arctic has been very limited, with networks straining to keep up with demand. Data speed and bandwidth capping limitations are common challenges for Arctic digital developers and production teams (where a single update to Xcode can often take an entire evening to download, if it makes it at all), and downloading apps or software patches (even to provide critical security updates) often becomes cost-prohibitive for data-plan subscription package users.<sup>1</sup> Limitations in bandwidth of this type make the downloading of playable apps or executable software highly difficult for many (especially with data caps in place), and this form of access-related digital divide is significantly hindering certain aspects of the development of digital creative industries in the North. Recent developments including announcements of Google Balloons via Project Loon and Musk's SpaceX geosynchronous 'micro-satellites' for Internet access in remote environments (Ars Technica) may herald vastly enhanced access, although with potentially concerning ramifications for Net Neutrality prioritising specific corporate and cultural communications.

#### **5. Bandwidth challenges affecting Arctic hardware preferences**

Because of challenges with cellular voice and data networks, the iPod touch has proven to be exceedingly popular in Nunavut and Nunavik, as these systems are able to utilise existing Wi-Fi networks (schools, universities and government offices have some of the fastest Wi-Fi networks in the North from my perspective), and run mobile iOS apps identically to iPhone-class devices, without the additional expense of cellular components.

Although Blackberry use has been and continues to be prevalent in the Canadian North (especially due to the Canadian pedigree of Research In Motion Corporation), however other than laptops, Apple iPod Touches and iPad tablets running iOS are (based on numerous personal observations

from interviews and workshops with Inuit youth in Nunavik and the Kivalliq, and data provided by the Pinguaaq surveys from three major communities in Nunavut) among the most popular mobile computing devices currently in use in the Canadian North.

This prevalence of mobile devices running a specific operating system in the North makes training and development of culturally-focused digital development targeting this mobile OS a critically important aspect in the translation of Inuit voices both for a new generation of learners within the Inuit culture, but also for broadcasting the messages of the Inuit in a far more concerted/augmented fashion than presently.

Despite the increasingly prevalent use of iOS devices by Inuit youth in the Canadian North, exceedingly little mobile content is actually available in Inuktitut online. There are notable exceptions however. Pinguaaq develops games in Inuktitut and works closely with Inuit developers. Thomassie Mangiok, an Inuit developer based in Nunavik has developed some wonderful apps/games completely in Inuktitut. The Pirurvik Center for Inuit language, culture and wellbeing is the creator of the stunning Tusaalanga app for learning Inuktitut. And the Kativik School board has developed numerous games for children related to learning Inuktitut vocabulary and syllabics. These Northern developers have begun a process that should be accelerated as rapidly as possible, especially when this work is locally developed and guided by First Peoples leaders and community members. At the same time however, I argue that precautionary measures should be kept in mind when working with third-party developers, consultants, and technological 'evangelists' who are attempting to digitally translate Inuit knowledge to others *on behalf* of indigenous peoples.

## **6. Digital divides and the 'pre-digital' utopian North**

In my own experiences working in technology-related labs and workshops in Nunavik and Nunavut, I have noted both the facility and enthusiasm with which many new technologies and digital development practices are embraced by members of Inuit communities (including youth and elders). In the summer of 2014, I participated in a digital workshop in Nunavut, bringing with me video and imaging equipment, mobile devices for application testing, brainstorming, and app review, and a prototype copy of Google Glass (one of the first times that Glass had been used in the region). Reactions to this technology and its use were highly varied.

Several Inuit beta tester 'explorers' of this wearable technology during the workshop were particularly enthusiastic and encouraged by the capabilities they felt technologies such as Glass made possible. These included the possibility of mobile recording of head-mounted POV high-quality still images, for motion capture video and audio (similarly to a GoPro device but with metadata-oriented and transmission-enabled

advantages). Some of the applications proposed during the brainstorming sessions included video-capture of activities on the ice (during that season an ice fishing derby was taking place nearby), and for audio recording of traditional activities that many felt were rapidly becoming lost in a new generation (multi-track throat singing was mentioned, as was the recording of hunting and ice-safety workshops, as some youth had fallen through ice just prior to the workshop). Overall reactions to the technology by the Inuit participants were positive, although they did not preclude discussions of significant ethical concerns and considerations related to surreptitious recording possibilities (this beta of Glass permitted 'eye-blink' camera activation, 'looking up' camera start etc. making it possible to initiate recordings without actually touching the device). Dangers related to inadvertently uploading one's data, as well as social ramifications of recording without first requesting permission, etc. were discussed.

Each time I visit an Inuit community to introduce or train technologically-related culturally-focused software techniques, the enthusiasm and interest I feel by participants in experimenting with the 'cutting edge' is always infectious and highly inspirational. I have not yet encountered a time in the Arctic when an Inuit member of a new media workshop has not developed a creative and/or unique perspective towards utilising technologies in the community for the purpose of documenting, recording, transmitting or furthering Inuit knowledge or cultural awareness.

I was however powerfully struck this time by the reaction of several non-Inuit (*Qallunaat*) long-term residents in the North whose reactions to Glass were quite different from the reactions of the Inuit participants in the workshops. In particular, several individuals were significantly concerned that I would make the decision to bring Glass to an Inuit community at all. Upon seeing the device, the primary reaction of some was highly critical, with observations including an overall disdain for bringing wearable technologies to the Arctic, reflections on the possibility that doing so may have been for the purpose of data-mining or potential future corporate or socio-economic exploitation, and thoughts that Glass would 'ruin' the Inuit and turn the Arctic into a corporate (dystopian) environmental and cultural wasteland. It was recommended by these observers that all inclusion of Glass in the workshops be ceased, and that it not be brought North in the future, in order to 'protect' the Arctic from this type of technological incursion.

## **7. Digital 'rescuers' as 'preservers' of a romanticised Arctic**

It was something akin to an ontological wake-up call to realise that my intentions of demonstrating these new technologies for the purpose of beta-testing and brainstorming culturally-adapted possibilities for the devices were potentially being so dramatically misinterpreted. This was the case for geo-embedding Inuktitut wisdom into areas of the Arctic via



augmented reality installed via the Glass Layar API (Layar for Glass) Upon deeper reflection I came to realise that these individuals had inadvertently provided me with a painful, yet highly (for me) significant scholarly and conceptual reminder.

A dangerous conceptual framework related to technology that I have found to exist in some remote communities where I have lived, and that I argue may be held to some degree by members of dominant cultures living and conducting research in indigenous communities, resembles the technological dual-edged sword (Kampf 2004) of digital utopianism/dystopianism, combined with the idea of deliberately limiting the access of indigenous groups to certain technologies, in order to serve as digital 'saviours' of culture and language.

In my classes I strive to convey to my students that technology may be viewed through multiple interpretive lenses including, as one example, utopian visualisations (Mahlouly 2014; Morozov 2011) whereby an advanced technology or networking scenario could à priori solve problems and create a 'better world' by virtue of its capacities, pedigree and desirability. Nakamura (Nakamura 2013; Nakamura and Chow-White 2013) describes in clear detail how early visions of the Internet and digital media as moderating elements that would erase distinctions of class, race and gender were very quickly disproven, and how aspects of language elitism (Bourdieu 1991; 2013) and self-identification online quickly served to extend existing interpersonal social discriminatory paradigms into cyberspace.

Digital utopian lenses have as one of their many foils a dystopian, Gibsonian archetypal view of technology which generally views it from the perspective of a destabilising force serving to disrupt culture, society and holistic social paradigms, functioning surreptitiously in ways that might, in some misinformed conceptualisations, potentially move an idealised 'pre-civilisation' culture away from a romantically conceptualised purity of 'noble savagery' and 'ruin' the pastoral, idealised view of (in this case) the Arctic. Highly idealised views of Other<sup>2</sup> places (both from a geographic and social perspective) are nothing new: Orientalist views of the North have been held in the imagination by many non-Arctic residents since well before the times of the first media representations of Polar regions. (McWilliam 2002; Moss 2008)

Looking at an NGram analysis of mentions of the Canadian Arctic in print since 1860, a significant spike can be observed in popular attention to the North beginning after the scientifically controversial (yet since highly lauded<sup>3</sup>) Canadian Arctic Exhibition in 1913; this media attention to the North has been exponentially increasing since, especially in recent years (Christensen *et al.* 2013; Shadian, 2014). Soon after Stefansson's expedition, attention to the Canadian North was further increased by the production of Flaherty's *Nanook of the North*; a 1922 silent documentary;

the first feature-length documentary ever made, however one that arguably enhanced stereotypes of the Inuit. (Bessire, 2003; Grimshaw, 2014; Hughey, 2009; Knopf, 2008; Prins, 1989; Raheja, 2007; Stanciu, 2013).

These misconceptions were also exacerbated through the deeply misinformed Polar (Arctic and Antarctic) themed early fiction texts such as by Poe (Poe, 1838), through the added popularity added to Steffanson's expeditions created by rumors of the 'pre-civilisation', 'Blonde Inuit' fallacies (Diubaldo, 1999; Jenness, 1921; Noice and N, 1922a; 1922b; Steckley, 2008; Sullivan, 1922), and through to Arctic misconceptions held by so many even to the present day (Troubetzkoy, 2011). For individuals holding a view of a 'pure', romanticised Arctic, the fact that advanced technologies would be introduced into an erroneously conceptualised 'pre-civilisation' (Karagiannis and Wagner, 2007; Spivak, 1999) community could result in a perception of Inuit no longer able to be 'protected' from these destabilising technological forces by others.

## **8. Ersatz Digital Translators: Technological Intermediaries as Misinterpretation**

In order to provide a conceptual framework for Arctic digital industries led by Circumpolar First Peoples, an attempt must first be made towards dispelling a specific myth: namely the belief that the highest levels of technologies (or, if not the technologies themselves, then their creation and/or maintenance) should be withheld from members of indigenous cultures (or perhaps conceptually held in escrow with non-natives serving as intermediaries), in order to ostensibly 'preserve' what is viewed as sacrosanct and ineffable about those languages and cultures by the non-native 'digital experts'. In this way (through preserving a status-quo of technological mastery held by non-natives, along with preserving a sense of 'magic' or 'mystery' viewed by native peoples regarding digital production and development), a dynamic of a cultural digital divide is created and exacerbated. (Bach *et al.* 2013; Norris, 2001; Ragnedda and Muschert, 2013)

The Arctic-oriented technological 'Qallunaat as Technological Saviour' complex can be analysed critically, in the phenomenon exhibited by media-oriented plot storylines such as those found in films including Cameron's *Avatar*, Costner's *Dances with Wolves*, Blomkamp's *District 9/Elysium*, Cruise's *Last Samurai* etc., with the overarching theme of the Qallunaat (White) Saviour serving as both cathartic figure and *deus ex machina* for combating a majority culture through the introduction of technologies and techniques necessary to lead a resistance rhizomatically (Deuchars, 2010; Saldanha and Adams, 2012) from within through translation.

The immense popularity of the film franchises described above may partly be explained by the films' psychological effect of a virtual (and highly temporary) expiation of guilt for the viewer based on the perceived (projected) value of the film's protagonist's actions in combating these themes caused by his/her own people (destruction of the environment, loss of language and culture, loss of extended families and networks, loss of overarching sense of community, etc.). The projection of an audience member's identity on the heroic saviour engaged in extricating these indigenous communities from his/her own culture's nefarious effects, serves to provide a pleasurable sense of accomplishment and relief (Ash 2013; Hughey, 2010, 2014).

### **9. Costly Third-Party Digital Translation Transitioning to Sustainable Local Presence**

Too frequently in the Canadian Arctic, network technicians, repair service technicians, coders, trainers, application developers, as well as researchers (including myself) are non-native Qallunaat serving as 'interpreters' or 'translators' for native Inuit individuals' digital lives. I have personally witnessed a multitude of cases where network technicians were flown at ridiculous expense from Southern Canada to Nunavut and Nunavik in order to provide routine network maintenance and other services that could easily be offered locally given sufficient training. A focus shift moving entirely from long-distance digital service calls in the Arctic towards training a new generation of Inuit network specialists would assist not only in saving costs related to flights and travel, but would also assist in the development of Arctic digital industries (McMahon *et al.* 2014a, 2014b; Storz and Moerke, 2014). Arctic digital industries, I argue, can assist in developing Arctic economies, work towards addressing enormously damaging currently existing social issues in the Canadian North related to violence and suicide (that arguably relate to a sense of hopelessness from lack of work and sense of self-worth in a community); and can serve to enhance and develop the digital creation and presence of Inuktitut (and other Arctic cultural/linguistic) content online.

From a content translation perspective, third-party contractors are often hired for work on a digital application's localisation, so as to ensure bi/trilingual (Inuktitut, French, English) versions of Arctic digital content. During this type of digital translation/localisation work, although Inuit may often contribute as consultants, 'language experts', or participants, the bulk of the grant-funding, recognition, and process-management in my experience, has nearly always been guided (at a top leadership level) by non-Inuit researchers, government officials, faculty, and Qallunaat researchers visiting in the communities. There are of course exceptions to this observation, and I have been made aware that some few Arctic digital production projects are entirely Inuit-led. I seek primarily however to draw attention to the fact that Inuit coders, digital service technicians, digital production team leaders, project managers etc. are still relatively

(if not very) scarce in today's Arctic - and bolstering the ranks of these highly skilled Arctic digital leaders would be a strong step towards ensuring that messages are not inadvertently altered or shifted by third-party digital content managers.

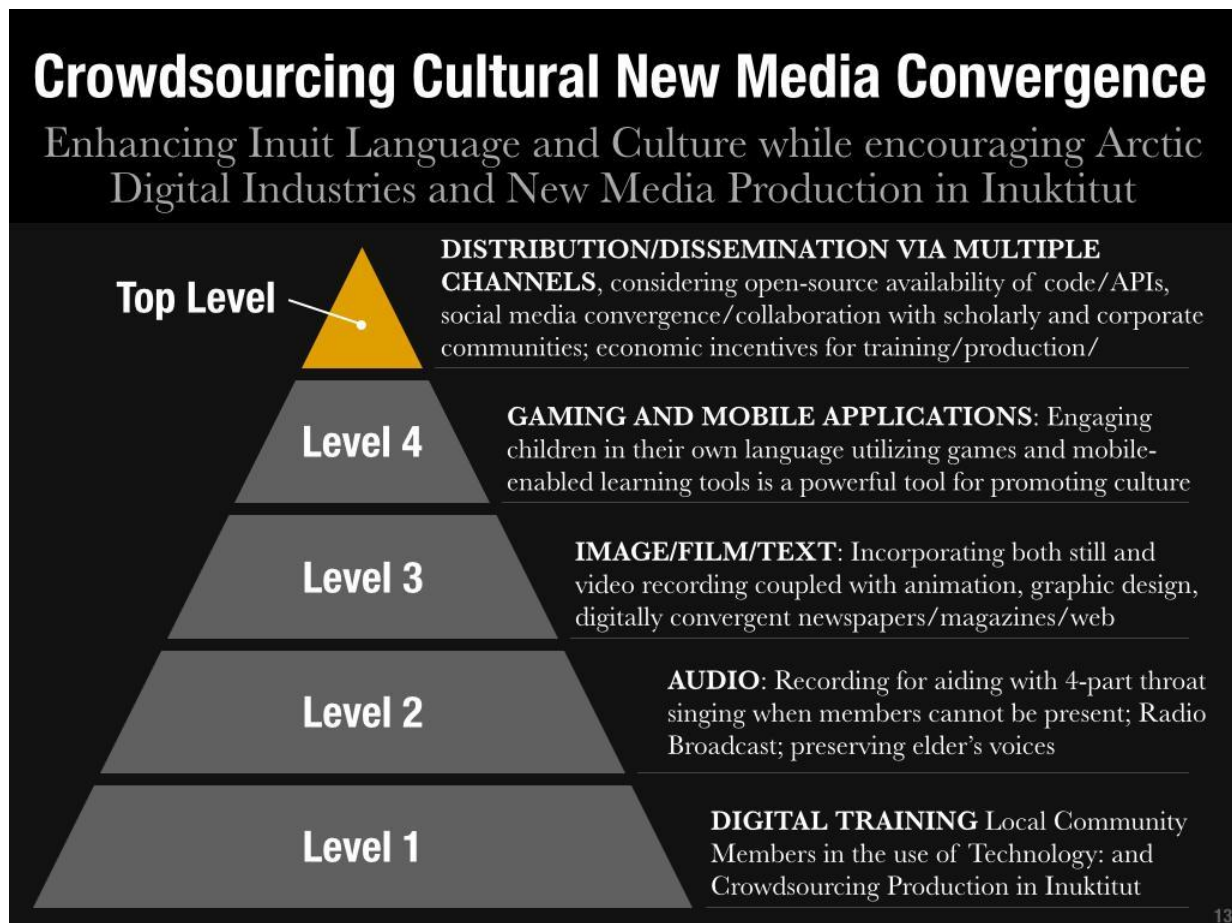
One important regulatory aspect that may be adapted to digital industries relates to how the Inuit have worked towards ensuring that research taking place in the North is not conducted by researchers who have little interest in the well-being of the communities themselves. At the Inuit Studies conference at Laval University in 2014 (Inuit Studies 2014), several Inuit Elders described significant challenges related to families who did not understand the research taking place (in some cases research even taking place in their own homes), and who were traumatised by their having felt as if 'objects' of research (in a Foucauldian sense as elaborated by Kallinikos 2005; Oksala 2005; Swazo 2005; Walton 2005). Guides to ensure ethical conduct for researchers in the North include work made available by the Inuit Tapiriit Kanatami, the Nunavut Research Institute, the Nunatsiavut Government and others<sup>4</sup>.

## **10. Towards a culturally convergent model for Arctic new media translation**

There are potential dangers in conceptualisations of introducing and assisting with technologies in communities in the Arctic:

- the allure of potentially withholding digital information to preserve a feeling of mastery/superiority/necessity of non-native involvement in current and future digital development initiatives;
- deliberately or inadvertently creating an environment of 'Qallunaat Digital Saviours' wherein only outsiders can seemingly truly *save* or *preserve* Inuit language and culture through digital translation conducted via the intermediary of a non-native digital 'expert';
- the snare of perceiving Arctic residents as digital research 'objects' or members of a population sample for the primary purpose of conducting research 'on' the Peoples of the North, rather than considering them as the leaders of the digital think-tank, workshop or organisation.

Many more conceptual dangers related to technological production and digital development in the North certainly exist, however as I work towards proposing a basic framework for digital projects in the North designed to assist in conveying, or 'translating' Northern knowledge to a wider audience, I believe that these dangers must be continually held in mind, in order to ensure that non-Inuit digital technologists are not drawn into seductive ontologies where a spirit of true service may be supplanted by the lure of a colonial mindset.



**Figure 1. Crowdsourcing Cultural new media Convergence  
(Diagram T. Pasch)**

## **11. Technological training and sustainable Inuit leadership in Arctic digital industries**

In this spirit of service, it is primarily comprehensive digital training that is first and foremost in my mind regarding the development of future Northern (Arctic) digital industries. I see digital development in the North as an exceedingly favorable alternative and/or potential equaliser and foil to the exploitation of natural resources and the devastation that certain industries (such as mining) can bring to Arctic communities. (Tester 2011). Attempting to apply in broad strokes the theoretical models of convergent media as described by Jenkins (Jenkins 2004) and Castells (Castells *et al.* 2009) to the Inuit and the Arctic as a whole is argued here as not appropriate in situ, as the Arctic is a region that possesses highly unique cultural, geographic, and sociopolitical considerations, especially at this particular historical juncture, which render it resistant to generalisation into easily compartmentalisable theoretical 'packets' for comparative analysis with other regions and media preferences worldwide. At the same time however, I will continue to posit that the voices of the 'People of the North,' if not expressed loudly and clearly via all media possible in the near-term, run the risk of potentially being lost in the

increasing roar of Arctic dialogue presently taking place in online communication, with a predominant theme therein being resource exploitation, utilisation and conflict of waterways for transport and military strategy.

The Inuit and other indigenous Arctic residents are all-too often perceived as tacit participants, token<sup>5</sup> Inuit for political or academic photographic media opportunities, or members of a rapidly growing Northern manual labour-force, often in resource extraction (Tester *et al.* 2014; 2013). Finally, (returning to the digital paradigms of this article) the Inuit are, in digital Arctic workshops, 'students' of the Qallunaat 'digital experts' who will show them the way to translate and 'save' their own culture. It is in the spirit of working towards potentially changing this dynamic that I argue that governmental investment in digital training from the ground-up, beginning with coding, is a highly auspicious point of origin for the growth of Arctic digital industries in the Arctic.

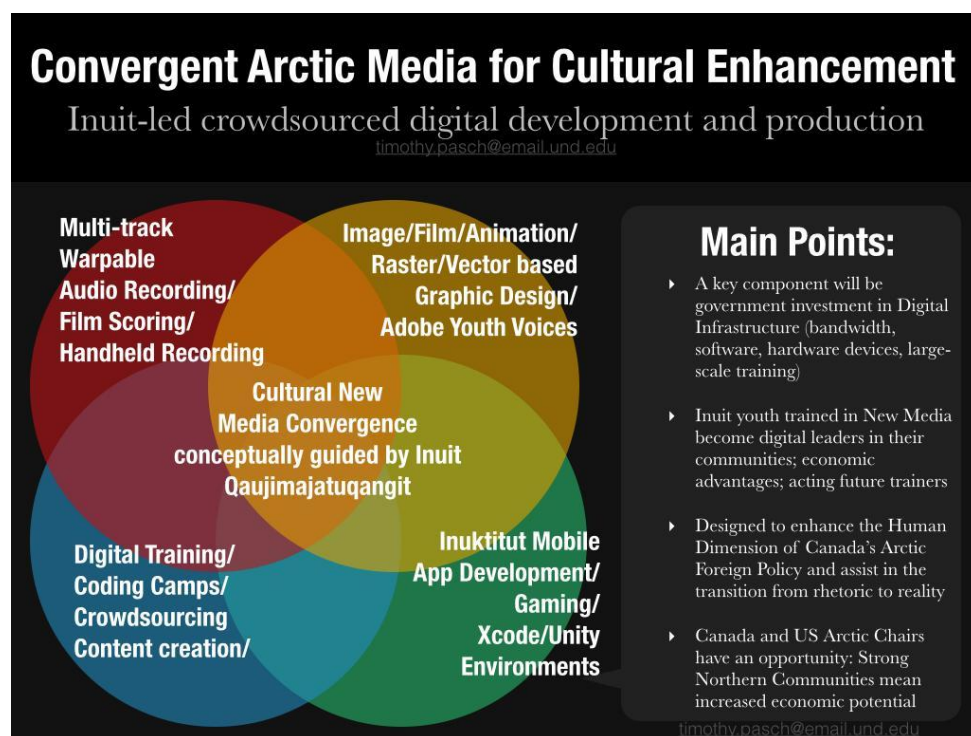


Figure 2. Venn Diagram for Convergent Arctic Media (Graphic T. Pasch)

## 12. Coding Camps and 'Developing' New Arctic Software Developers

In multiple communities throughout the North, an innovative digital initiative is underway, in the form of coding camps being run by Pinguaaq in Nunavut. Although a number of the primary trainers are Qallunaat, numerous Inuit participants in the camps who have completed initial training are beginning to train others in their communities. Indeed, the 'train the trainer' policy that Pinguaaq is utilising, their close ties with Inuit trainers, and their focus on building a critical mass of code-savvy

residents in Northern communities, is truly laudable in the view of this researcher. Learning computing languages and app-development environments (Xcode for Apple Development, Unity for gaming physics and animations, etc.), in addition to training in other software technologies, can assist in generating community-based digital production 'societies' (such as Arviat Film: an innovative team of Inuit youth who film, edit and produce their own documentaries, including a recent award-winning feature on bullying in Northern schools).

In my own teaching experience, students who begin to view individual aspects of digital development arts not as distinct, separate aspects of knowledge (for example; thinking "I am only a video editor but do not work with digital audio" or "I am only a graphic designer") and rather see these digital components as part of a unified whole, begin to become 'convergent digital humanists,' able to carry out a wide variety of digitally-related tasks and find innovative solutions to new media-related issues. These empowered individuals start to see themselves as increasingly valuable to an organisation or community, are arguably much more able to find media-related opportunities than those without digital training, and become able to organise and distribute knowledge to a much-wider audience. Along these lines, Pinguaaq has been primarily focusing on the coding element, which has been particularly lacking in the North from a training perspective: far too many coders are non-native. As more indigenous coders are trained, this can assist in creating a dynamic momentum of culturally-focused app development. In addition to coding, the converging of audio production, still imaging and graphic design, game development and crowdsourced production and distribution, can be tools able to galvanise production in Inuktitut: a few projects of which are outlined here.

### **13. Film production and editing in the Arctic**

The work of Zacharias Kunuk and Isuma Igloolik productions (and the Indigenous Digital Democracy Project) is one example of the filmmaking emerging from the North. Jobie Weetaluktuk's *Urban Inuk (Qallunajatut)*, provides residents of Montréal a better understanding of what it means for Inuit to leave the Arctic and live in the 'big cities' to the South. With the Apple OS focus at such high levels in the North as described earlier, early training in software such as Final Cut Pro non-linear editing software, combined with Motion for motion graphics, (even at the elementary school level) can start young students in the North as young editors and begin a process of digital mastery that can pay dividends far into the future. Adobe Premiere and AfterEffects offer very similar functionality and are equally as important in media industries, and are recommended here for inclusion in Northern curricula as early as possible.

## **14. Digital photographic imaging**

It would be a significant understatement to mention that there is a widespread interest in still photography in the North. Worldwide, photographers idolise the North as a pristine geographic region of the world filled with wildlife and awesome panoramic vistas. Training young Inuit in photographic principles, professional-grade camera bodies and lenses, and in the use of software such as Lightroom can assist in incorporating digital imaging workflows into the communities' digital message creation and representation on websites, publications, and other aspects of communicating strategic messages in the North.

Far too often, photographic expeditions in the Arctic, of which there are a considerable number, are led by international, non-Inuit 'eco-tourism' groups bringing often exceedingly wealthy clients on extravagant tours of the North (I have heard many stories of Arctic tourists with private chefs, hot-air balloon rides over the tundra, gourmet meals 3 times per day etc.). Many of the non-Inuit international photographic Arctic 'experts' who accompany these chaperoned eco-tourists have Inuit as their assistants, primarily in sherpa-esque fashion as porters in some cases, and yet the Inuit presence is absolutely critical to the success of the expeditions.

I argue here that the government of Nunavut should work diligently to train as many Inuit as possible to function simultaneously both as guides and technical experts in these situations, and to limit the number of non-Nunavut based expedition/guiding services, in order to bolster local training in photographic and other digital arts, to build expertise and local ownership.

## **15. Graphic design**

Graphic design, in particular with Photoshop, Illustrator and InDesign (and certainly other tools as well, although these three are arguably among the most popular/utilised in design circles), can be a powerful tool for providing culturally-oriented content in formats required for dissemination to a wider audience. Graphic design plays a part in culturally-oriented and linguistically centred game design, in web design for communities, in layout for print artifacts such as community newsletters, social media presences and backgrounds (even culturally-appropriate 'branding' to ensure that what is represented worldwide meets community approvals) via Facebook, Twitter, and other social media platforms.

## **16. Culturally oriented digital audio engineering and production**

Digital Audio (capture, production, arrangement, etc.) is another aspect of significant cultural digital applicability in the North. The rapid loss of elders in the community is a concern that I have heard mentioned repeatedly,



and in particular related to multi-part throat singing ensembles, of which there are fewer and fewer individuals able to perform specific parts due to challenges of travel, increasingly infirm elders and fewer and fewer members of the younger generation able to reliably practise with others. Being able to digitally record multitrack ensembles, and play them back via simple muting and soloing of tracks on tablets for example, can be of significant assistance in practising and performing even when all members of the community ensemble may not be present.

The ability for students to engineer this type of recording can be of particular benefit and provide both a training and financial advantage over and above relying on third party (outsourced) professional teams. Indeed this type of crowdsourced digital audio recording and arranging is highly powerful yet relatively straightforward to teach and train, and developments in software such as Logic and Ableton Live enable 'warping' of audio (so that tempo can be transformed while keeping pitch intact), enabling individuals to transpose to suit their vocal range.

## **17. Funding challenges in the North related to digital development/localisation**

During the North American (Canadian/US) cycle of the Arctic Council it is suggested here that Arctic policymakers will reflect on increasing funding for Inuit and other indigenous/First Peoples digital production teams. Although this type of funding does exist in limited forms presently, it often takes the form of grants led by Universities in the South or production teams based outside the North that guide and assist Inuit in these efforts as 'translators,' rather than funding grassroots efforts originating in the North led by Inuit.

Another challenge relates to changes in pedagogical curriculum in Nunavut. Much progress recently made vis-à-vis development of Inuktitut content, curriculum and assessment for schools in Nunavut, has seen significant setbacks resulting from the elimination of Inuktitut components, and reversion to other provincial models (Nunavut Department of Executive and Intergovernmental Affairs 2014). As a result of this challenging reduction in culturally focused educational content delivery, it is increasingly incumbent upon communities themselves (especially communities that are more isolated from centres such as Iqaluit or Kuujuaq) to develop culturally centred skills, to begin initiatives, and to train young people in ways that can benefit the entire community.

It is the Inuit *Qaujimajatuqangit* concept of *Qanuqtuurniq*, or of being innovative and resourceful in seeking solutions, that may assist in conceptualising the grassroots optimisation of digital humanistic workflows. Designed to enhance speed and effectiveness of message creation and distribution in culturally grounded, professional and dynamic

ways, a conceptual framework based on the guiding principle of *Qanuqtuurniq* may, despite the significant challenges of highly limited funding for such efforts, and educational policies that are flattening the cultural/linguistic landscape of Nunavut, potentially assist in recreating some of the optimism that first emerged upon the creation of Nunavut as a distinct Territory, and that has since dimmed considerably in the estimation of many residents of the North with whom I have conversed.

## **18. Textual representations: arguments for preserving syllabics online**

Two Inuit leaders in particular seem to be providing a very strong digital presence and technological focus for a new generation of Arctic residents. Madeleine Redfern is an Inuit attorney but also a luminary on Twitter with over 50,000 posted tweets as of this writing. Her online messages focus especially on social justice and digital production and development in the North by Inuit. Her official vision statement on Twitter is listed as promoting and developing the “cultural and socio-economic benefits (for Inuit) through business development, good governance and high-tech”. Her work towards enhancing Arctic data bandwidth, promoting cultural content online and utilising technology for enhancing businesses in the North sets a strong example in the efforts to establish new digital industries in the Canadian Arctic. Another admirable Arctic leader whom I would like to mention here is Terry Audla, President of the Inuit Tapiriit Kanatami, who has worked with teams for a digital standardisation of Inuktitut syllabics.

In the fall of 2015 a national Inuit language summit will convene to discuss further steps that potentially unify changes in the Inuktitut syllabary, and which may assist in better digital representation of the language. As Inuktitut has traditionally varied significantly depending on region/dialect, the standardisation of the writing system may potentially assist in creating more coherent digital productions with textual creation, translation, and localisation in a standardised Inuktitut syllabary better able to be adopted by speakers of Inuktitut, regardless of region. The question of syllabics as the primary script for Inuktitut remains a controversial one. With the increasing advent of the utilisation of Roman script in social media and elsewhere in digital environments, some Inuit feel that the entire syllabary should be dropped in favor of a Roman alphabet.

As Inuktitut was traditionally an oral language until very recently, some argue that the writing system does not hold as strong a cultural link to the past. Syllabics themselves were introduced in the late 19th century by Peck (Dorais, 2014; Hot, 2009; Peck, 2006), who developed the Inuktitut script based on the Cree syllabary elucidated by Evans in the 1830s. For this reason, it can be argued (correctly) that the identity of the Cree and

Inuktitut syllabaries were instituted by *Qallunaat* (Methodist and Anglican Missionaries, respectively).

Kenn Harper (2002: 91) writes: “Today, some Inuit leaders...express a need for a change from the use of the Syllabic writing system to a system using the Roman alphabet, a change, if undertaken, that would profoundly affect the lives of most adult Inuit.” The reason that I revisit Harper’s analysis of the politics of syllabics here, is that some of what is described in the Harper article (such as decreasing costs of printing syllabics based on evolutions in computer technology) has indeed come to pass since that prescient writing, with the adoption of various fonts (nunacode and other fonts available through the Pirurvik Center), linguasoft technologies (Linguasoft), and, significantly, the Inuktitut language available as options in the iOS and OSX operating systems.

### **19. Commitment to the Emotional and Cultural Value of Inuktitut Syllabic Content**

As a result of recent digital changes reducing the cost of reproducing Inuktitut content, the argument that Inuktitut syllabics are ‘holding the Inuit back’ digitally, does not necessarily follow as a logical progression. As quoted by Harper reporting Mark Kalluak: “When I became fully familiar with the use of syllabics, I became, as it were, in love with them” (Harper, 2002: 96).

Many Inuit with whom I have personally spoken have also expressed a love for syllabics, and a sense of visceral cultural identification related to that script. Despite the proselytic origins of the scripts, the current fact remains that Inuktitut serves as an immediate and highly unique font-based ‘cultural identifier’ that provides a unifying script both in print and online. Concerns related to youth who utilise Roman syllabaries to combine English and Inuktitut may generate worries of language loss by some that ‘pure’ syllabics are not utilised; however we see a similar example in the Japanese syllabary where multiple scripts of Hiragana, Katakana and Romaji (i.e., the Roman alphabet) are combined: with no apparent ill effects to the vibrancy of the Japanese language.

Harper’s recommendation that the government of Nunavut should “make a major commitment to the production of culturally-relevant material for readers of all ages” (both in Inuktitut syllabics and Roman orthography, as well as establishing Inuktitut literature, reading materials for grade school etc.,) is a recommendation that I emphatically share for the digital world. The exceedingly high number of Inuit youth utilising iPod Touches/iPads (Pinguaaq 2014) and the general rise of consumption of digital media over and above paper media by youth worldwide, is certainly reflected in the Arctic, although in unique ways that necessitate much more localised training, community-based digital leadership, and a reduction in third-party outsourcing.

The arguments made in *Starting Fire with Gunpowder Revisited* (Pasch 2010) related to recommendations for increased Inuktitut video content on YouTube, the “resurrection” of iconic Inuit heroes with pedagogical wisdom such as Super Shamou, the appropriate digital archival and curation of Inuit Broadcasting Corporation works such as Takuginnai etc., would serve to ensure that legacy Inuktitut media content (utilising early video cameras etc.) will not be lost.

It was exceedingly tragic for me this past summer in the Kivalliq to hear that entire crates of Inuktitut-based media stored on legacy tapes and materials were not ‘translated/localised’ to a new generation of media-consumers in the North and worldwide, but rather were junked and sent to the dump as ‘unreadable’ legacy productions. As argued in a recent documentary entitled *Digital Amnesia* (2014, Van der Haak) the loss of books, legacy media, and priceless linguistic works is an inestimable tragedy and increasing in commonality by orders of magnitude. A modern-day *Fahrenheit 451* takes place whenever legacy media is destroyed and fails to make the ‘jump’ to modern media forms being viewed by youth and elders alike. In the case of Inuktitut, a language where content is absolutely critical to situate new generations in the historical legacy of a heritage, it becomes even more foundational to ensure that information is not lost and that education can be transmitted across media delivery-system transitions.

## **20. Converging digital production and development into the human dimension of Canada’s Arctic Foreign Policy**

With the Arctic Council Chair now held by Canada until 2015, followed by the United States until 2017, there is a powerful shared opportunity in North America to work jointly towards a convergence for enhancing and strengthening Arctic culture, language and media voices, with a simultaneous push for sustainable economic growth, innovation and investment in culturally-oriented Arctic digital industries.

Ultimately, it is my argument that through the convergence of grassroots Inuit-led team-based new media paradigms and workflows, it is possible to train community members in coding and new media technologies, to develop digital leadership in Northern communities, and to enhance and preserve culture and language while creating employment opportunities and encouraging technologies that support economic development.

Strong and healthy Northern Communities mean increased economic potential, however in addition to investing in the infrastructure to make this possible, it is incumbent on visitors to the North, (even those who believe themselves to be highly well-intentioned), to keep in mind the post-colonial dangers of attempting to ‘save’ the People of the North using technology. Reaffirming that Inuit and other circumpolar indigenous digital

leaders in the communities be the ones to guide burgeoning Arctic digital industries, will create the best possible environment for translation of Inuit IQ and other forms of traditional wisdom into new media dissemination platforms.

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## Biography

Dr. Timothy J. Pasch (Ph.D., Communication, University of Washington 2008) is Associate Professor of Communication at the University of North Dakota. Pasch is a dual US/Canadian citizen and is fluent in French and Japanese, with some Inuktitut language ability. He lived with an Inuit family in Inukjuag, Nunavik (Arctic Québec) for his dissertation research and recently returned from Arviat, in the Kivalliq Region of Nunavut, where he assisted the community in various digital research initiatives. His research interests focus on issues of cyberculture and humanities informatics especially as they apply to questions of identity in the Circumpolar Arctic and interstitial borderlands. Pasch leverages and integrates digital humanities convergence technologies, crowdsourced media creation, and social network analysis for the purposes of linguistic and cultural preservation built on human-dimension cyberinfrastructure.  
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<sup>1</sup> At one point this past summer 2014, I was given permission by a hotel in a remote community in the Kivalliq to utilise all of its bandwidth very late one evening – resulting in a combined multi-room data flow just enabling me to download one small update patch over the course of several hours. While this example certainly does not summarise data speeds throughout the entire North, it may provide one anecdotal example of some of the challenges currently facing Arctic digital industries and production teams reliant upon connectivity and networked updates.

<sup>2</sup> ‘Other’ is capitalised here in order to call attention to the Post-Coloniality from a Saïdian, Spivakian perspective.

<sup>3</sup> Numerous celebrations took place in Canada to commemorate the 100<sup>th</sup> anniversary of the Canadian Arctic Expedition of 1913–1916, and the Royal Canadian Mint has commemorative circulation coins (Royal Canadian Mint 2013).

<sup>4</sup> Inuit Tapiriit Kanatami. (2005). Checklist: Inuit Involvement in Research Projects. ITK Environment Bulletin, 3, pp. 25-26; Nickels, S., Shirley, J. and Laidler, G. (2006); Negotiating Research Relationships with Inuit Communities: A Guide for Researchers. Ottawa and Iqaluit: Inuit Tapiriit Kanatami and Nunavut Research Institute; Nunatsiavut Government. (2008). Nunatsiavut Government Interim Research Process. Updated December 2008.

<sup>5</sup> I refer to the concept of ‘Tokenism’ here as regards the act of crafting a symbolic gesture of inclusion rather than actually involving a minority group in the decision-making proces