# Encounters Across Difference:

# The Digital Geographies of Inuit, the Arctic, and Environmental Management

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A dissertation

submitted in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

University of Washington

2017

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Program Authorized to Offer Degree:

Geography

University of Washington

## Abstract

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There is broad consensus amongst scholars across a wide range of disciplines that digital technologies are having profound effects on micro- and macropolitical processes across the world. However, research into digital geographies has not rigorously examined the role of the Internet in bridging epistemological difference. Rather, most of this research has focused on the digital practices of a narrow group of elite users, situated in the Global North and largely lacking epistemological diversity from one another. Those few studies that do shift their focus to the Global South either take an anthropological view of a single society, or focus on unidirectional impositions of the Global North on the Global South. In doing so, these studies similarly ignore any bidirectional dialogue, or interepistemological encounters, between digital users situated in very different regions from one another.

To overcome that gap, this project focuses on a dispersed and highly international set of digital practices. Specifically, I analyze the emergence of digital, interepistemological encounters related to environmental thinking and climate change politics related to the Canadian Arctic.

Issues surrounding the Arctic environment are ideal for this study because they have attracted a global and diverse audience. Debates around Arctic environment often produce debates between two different groups – Western scientists and Canadian Inuit – that hold very different epistemological perspectives from one another. Inuit are increasingly using the Internet to broadcast their voices to broader audiences, and there is some evidence that digital technologies are successfully allowing them to overcome the spatial distance between their Arctic communities and geopolitical centers of power. However, it remains unclear how effective these tools have been for overcoming differences in epistemology between Inuit and other digital users.

I begin by drawing on diverse strands of postcolonial and Deleuzian theory to develop a theoretical framework capable of identifying how knowledge hierarchies are reproduced and disrupted across digital spaces. Using this framework and an innovative set of computational and qualitative methods, I identify three sets of digital processes that extend knowledge hierarchies into digital spaces. First, I find that the material infrastructure of the Web within the Arctic has intersected with colonial conditions to erode social practices that support the transmission of Inuit knowledge. Second, I find that Inuit have comparatively less access to the digital tools and spaces that might help them to transmit their knowledge to large audiences. Third, I identify a range of transformative, digital practices that flatten Inuit knowledge to a set of empirical observations, rather than as rooted in a comprehensive knowledge system, so that these observations can be integrated into Western scientific frameworks. Each of these sets of processes decreases the likelihood of transformative and pluralistic discussions between Inuit and Western scientific epistemological systems. However, I also find that Inuit are actively developing mediating concepts and practices to work against these knowledge hierarchies and

open space for more epistemologically pluralistic digital engagement. This research thereby offers a comprehensive and empirically-grounded examination of how indigenous engagement with digital technologies produce new forms of epistemological politics. In doing so it extends geographic research on digital inequalities, digital participation, and knowledge production. It also offers a novel postcolonial framework for analyzing digital knowledge politics, and extends research into the role that digital technologies play in shaping international discussions about climate change.

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**Acknowledgements**

I think that dissertations often have the strong connotation of being a measure of individual accomplishment – an indication that a scholar is individually brilliant or authoritative or hard working. I suspect, though, that most individuals that hold a PhD know that the opposite is true – that a dissertation is necessarily a product of collective effort and achievement. This is certainly the case for me, as this dissertation would never have been possible without the support, encouragement, knowledge, brilliance, and effort of an incredible number of people in my life. Here I hope to offer a small measure of thanks to some of you that have made this document possible.

Bethie – this dissertation belongs as much to you as it did to me. Thank you taking off on an adventure to Seattle with me, on what has turned out to be an incredible adventure. Thank you for your love, support, and guidance. I wouldn't have made it through these six years without our many dinners out, or our time spent vegging out on the couch, or our long-distance conversations during my fieldwork. So, thank you for all of that and more. And, thank you for your time spent memorizing obscure philosophers and corresponding keywords, so that you could dazzle geographers with your connections between Foucault and biopower or Nigel Thrift and non-representational theory. Perhaps this sense of humor was the most critical factor in helping me to get through this process. Thank you.

I would also like to thank my other family and friends for their critical roles in my education and work. To my parents and my brother – thank you for instilling in me a sense of curiosity and wonder about the world. Thank you for always supporting me, for encouraging me to pursue education to the highest levels, and for instilling in me good values and a drive to always do my best. If this dissertation research does any good for this world, then it is only

because you raised me to strive to do good. Thank you to all of my friends here in Seattle, who supported me, listened to me, laughed with me, and much more. A special thanks to the Society – Marshall, Ariana, Julia, Joe, Itay, Lian, Mike P., Nisha, Skye, Mike B., and Greg – for providing me with a place to come every week for great food and even better company. Again, this dissertation would not have been possible without all of you.

Thank you, so very much, to the many faculty that have supported me throughout my academic career. Most importantly, I would like to thank my committee for their support and the intellectual energy that they put into this project. My deepest thanks go to Sarah - I truly cannot imagine a better advisor. I am constantly impressed by your ability to tailor your support to each of your advisees, by your ability and willingness to give (great!) advice on everything, by your enthusiastic dedication to students and learning, and so much more. I so appreciate everything that you have done for me over the past six years. I would also like to thank Luke and Matt for their incredible contributions as committee members and mentors. I am so very appreciative of the intellectual energy and creative ideas that you have brought forward to discuss my ideas and work. I am also very grateful to have gotten to learn from each of you in your courses, and also to have benefited from experiences teaching with you. I would also like to thank Lance Bennett for his support throughout my Generals process, and to thank Jim Thatcher for serving as my Graduate Student Representative. A range of other faculty and staff were also vital to my graduate success. They include Mark Ellis, Kim England, Lucy Jarosz, Katharyne Mitchell, Rick Roth, James Baginski, Sharon Frucci, Parwati Martin, Marci Melvin, Robyn Davis, Monick Keo, and many more.

Just as important were the many graduate students with whom I shared offices, classes, and ideas. There just isn't enough space to name all of you, so I will just thank some of the

collectives that played a particularly important role in my life. Thank you to the cohort of 2011, for your friendship and for making my transition to grad school so much fun; thank you to my fellow Sarah advisees, for your personal and intellectual support; and thank you to my office mates in 428, for putting up with me. I would also like to extend a very special thanks to all of you that have joined me, over the years, for the two o'clock meeting. That has been one of the most important and consistent intellectual and social spaces of my time as a graduate student, and I appreciate each and every one of you that made it so. I would also thank Don Schultz for providing us with such an inviting space for our meetings.

Another entire set of individuals were more directly critical to my research in the Arctic. First, I would like to thank Nadine Fabbi. I had never thought that I could ever become an Arctic scholar, until meeting Nadine. Thank you for inspiring me, and then supporting me at every turn. You are building an incredible program here at UW, and I am so appreciative for all of the opportunities you have provided for me. Second, I would like to thank Alexina Kublu and Mick Mallon. None of this would ever have been possible without you. You have had an absolutely transformative effect on my life, both academically and personally, and I have no words to express how thankful I am for this. Thank you for your friendships and your patience, for teaching me Inuktitut, for negotiating Skype with me, for taking me to Igloolik, for welcoming me into your home and boat, for introducing me to so many new foods and experiences, and so very much more. Qujannamiik. I also need to thank the many other people that made my fieldwork in Igloolik possible. Thank you to Jonathan Frantz and Zach Kunuk for your logistical support prior to the fieldwork. Thank you, so very much, to all of you at the Oral History Project in Igloolik – Rachel, Micah, Levy, and Louis – for your friendship and incredible support. You shared so much with me, and I am so grateful. I will never forget the things that you taught me,

the conversations and laughter we shared, or the many afternoon snacks. Thank you, in particular, to Rachel and Micah for all of your attempts to turn me into an inuk, a real person, even though you had to start with basics like baby talk and string games. A special thanks to Michelline and Samueli Ammaq, for taking me out on the land and sharing so many incredible experiences with me. I will carry these memories for the rest of my life. Thank you to all of the participants that shared their knowledge with me: Micah Arreak, Christine Quassa, Isaiah U. Patterk, Abraham Ivalu, Cindy Qamukaq, Sandy Qamukaq, Justine Paniaq Qamukaq, Leonard, Eva Qattalik, Peter, Bruce Hualli, Zacharias Kunuk, Toby Otak, Francis Piugattuk, Elijah Evaluarjuk, and Johnny Airut, along with 5 confidential participants. It is your knowledge that forms the base of this research. And, thank you to all of the Iglulingmiut that allowed me to visit your land, that shared their culture with me, and that offered support and friendship. Qujannamiik.

Finally, I thank all the organizations that provided financial support for this project. Thanks go to the Geography and Spatial Sciences and the Arctic Social Sciences Divisions of the National Science Foundation, for providing me with a very generous Dissertation Research Improvement Grant (Award Number 1535142). Thank you also to the following units at the University of Washington: the Department of Geography, the Canadian Studies Center, the Henry M. Jackson School of International Studies, and the College of Arts and Sciences.

## 1. **Introduction**

On June 16, 2016, after three long days of travel, I arrived at the small airport of the Inuit community of Igloolik, Nunavut. I was nervous to start the major field component of my dissertation research, but felt I had prepared as well as possible. I was carrying research approval documents from both the University of Washington and the Nunavut Research Institute (NRI)[1], had visited Igloolik once before, and had established community contacts for my research. And, of course, I also had all the normal tools that make academic research official—informed consent forms, interview scripts, a detailed and densely-cited outline of my methodology and theoretical framework, a digital recorder, an encrypted hard drive, and a very heavy goose-down parka. However, as often happens in research, some of the most important components of my project were people and events that I had neither prepared nor expected to encounter.

The critical encounter—the encounter that made possible the most interesting empirical details in this dissertation—occurred my second day in the community, at the Oral History Project (OHP). Now a part of the Nunavut Arctic College's Language and Culture Division, the OHP had originally been established in 1986 by the NRI to record Inuit knowledge in the northern Foxe Basin area. At the time I was not headed to the office because of its incredible work on Inuit knowledge; I was relatively oblivious to these resources at the time. My visit had two, very logistical goals. First, I was staying at the NRI's research bunkhouse, and the woman managing the bunkhouse locally—Rachel Qitsualik—also managed the OHP office. I wanted to check in with her. Second, my Inuktitut teacher for the past three years—Alexina Kublu—happened to be working on a project at OHP for about a month, and I needed to meet with her to plan my continued Inuktitut lessons. Fortunately, my visit extended well past those initial

1 The process of acquiring approval from the Nunavut Research Institute includes gaining approval from the local community.

logistical concerns—I ended up spending a portion of nearly every day of my trip in that office.

The people in the office—Kublu and Rachel, but also Micah Arreak, Levy Uttak, and Louis Tapardjuk—transformed my fieldwork in two ways. Most tangibly, they offered me support and access to resources that made my research richer and much more successful than it otherwise would have been. They helped me make contacts, think through and revise interview questions, and gain access to the rich information sources at the OHP. Even more importantly, though, they challenged me to listen, see, and think in new ways, and to better come to grips with my relationship, as a *qallunaaq*[2], to both my research and the community of Igloolik. This allowed me to embody and perform the primary theme of this project – the difficulties of and opportunities presented by listening, and engaging in conversation, across difference. For that, I am immensely grateful and humbled by the friendships I have developed with them, as well as by the many other friendships and encounters I had in Igloolik.

This dissertation is, first and foremost, a project about listening. It is about the type of listening that can produce interepistemological dialogue that is pluralistic, non-hierarchical, and, ideally, mutually transformative for those that engage in it – the type of listening that Spivak has famously claimed can help individuals to unlearn their own privileges as part of "the beginning of an ethical relation to the Other." (Landry and MacLean 1996, 5) Questions of transformative encounters are particularly important at this moment in history. Places across the globe are increasingly interconnected through unequally felt political, economic, and environmental flows (e.g. Braun 2006; Clark 2011; Connolly 2013; England and Ward 2007; Kohn 2013; Milanovic 2016; Morton 2010; Peck and Tickell 2002; Sparke 2004, 2006), yet global societies remain deeply divided, resistant to compromise with different perspectives, and eager to securitize any hint of otherness (e.g. Dunlap et al. 2016; Kotler 2016; Lianos 2016; Twenge et al. 2016).

2 Non-Inuit, non-indigenous peoples; the plural form is *qallunaat.*

Difference is increasingly encountered but also increasingly pathologized. This dissertation asks whether digital tools, techniques, and spaces may offer resources for transforming this negative, and often violent, relationship to global difference.

Specifically, this project explores the potentials and limitations of the Internet, as a complex set of hardware, software, and digital practices, for providing spaces in which transformative encounters[3] across epistemological difference can take place. There is broad consensus amongst scholars across a range of disciplines that digital technologies are having profound effects on micro- and macropolitical processes across the world. Technological advances in information and communication technologies (ICTs) have allowed individuals to interact with one another across very large geographic distances, and to bypass geographic and sovereign boundaries to engage in connective forms of politics (Anderson 2006; Agarwhal et al. 2012; Barabasi and Bonabeau 2003; Bennett 1998, 2008; Bennett and Segerberg 2013; Bennett, Segerberg, and Walker 2013; Buchanan 2002; Lotan et al. 2010). There is also evidence that these technologies provide a forum for marginalized voices to expand their reach and increase their access to political decision-making processes (Benkler 2006; Bimber 2007; Castells 2004).

However, research into digital geographies has tended not rigorously examined the role of the Internet in bridging both spatial *and* epistemological difference. As I argue elsewhere, most digital geographies research has focused on the digital practices of a rather narrow group of elite users situated in the Global North (Young 2016; see also Caquard 2014). These studies often look at the political and economic consequences of digital technologies and practices internal to US and European societies. These studies do not effectively examine spatial *or* epistemological difference. A second group of studies shifts from these Global North contexts to examining the role of ICTs in the Global South. However, many of these studies take an

[3] See section 3.6 for a discussion of the normative criteria that I use to define a transformative encounter.

anthropological approach that focuses on processes internal to those societies themselves, rather than focusing on digital flows between the Global North and South. Current work on Inuit and digital media – primarily within anthropology, sociology, and political communications – has focused more on Inuit-to-Inuit exchanges within the Internet, rather than on whether the Internet facilitates digital encounters between Inuit and *qallunaat*. This research may discuss how technologies produced in the Global North are taken up in the Global South, and a variety of ICT4Development and crisis mapping projects have examined how international organizations deploy ICTs in Global South contexts. However, even in these cases the nature of the digital encounter is unidirectional – the focus is on how the Global North affects the Global South, rather than on bidirectional exchange. This forecloses any critical interrogation of how the Global South might employ digital tactics to transform the Global North. It also reproduces an epistemological hierarchy in which the Global North retains an active and hegemonic position with regards to the production of digital knowledge.

Where previous work has concentrated on digital projects localized to either the Global North or Global South, this dissertation instead focuses on a dispersed and highly international set of digital practices. Specifically, I examine the emergence of digital, interepistemological encounters related to environmental thinking and climate change politics. Climate change is an inherently global issue, and is of interest to a diverse set of stakeholders from across the world. Many of the stakeholders interested in the Arctic often come from very different epistemological positions. The research design explicitly targets a range of Web platforms that cater to diverse and distant audiences interested in the environmental conditions of the Arctic. In many instances these audiences are deeply interested in transforming global ecological imaginaries, to affect the policies that affect material change in the Arctic itself. As a result my research design allows me

to directly address the role that digital technologies play in mediating both spatial and epistemological differences in order to produce new global imaginaries of space and place. This fills a critical gap in current digital geographies research.

The conceptual goal of this project is to determine the possibilities that the Internet offers for individuals to come together in interepistemological dialogue, despite holding very different views of the world. More operationally the project explores what types of opportunities the Internet offers for dialogue over the Arctic environment that might mutually transform the views, actions, and material conditions of Inuit and qallunaat. I ask the following research questions:

1. How is Arctic environmentalism articulated online?
2. What types of mediating concepts exist are produced online, which allow for digital discussions between Inuit and qallunaat and the production of common notions? [4]
3. In what ways are the digital spaces of the Internet striated[5], such that they discourage the production of common notions and reproduce epistemological hierarchies?
4. What specific attributes of the Internet contribute either to the production of mediating concepts or the production of striated spaces?

In **Chapter 2** I build the argument that current environmental issues have led many thinkers to demand a rethinking of dominant, global thought about our relationships to the world. These issues are increasingly forcing dominant forms of Western thinking into global

[4] Common notions are ideas of similar composition encourage discourses from different groups to be blended together in productive ways. Common notions are often produced through engagement with mediating concepts and practices that bridge competing epistemological systems. In the context of this dissertation mediating concepts and practices allow Inuit and qallunaat to discuss common notions of the world in a manner that provides both with political opportunities for transformation. Common notions and mediating concepts are explored more in Chapter 3.

[5] Striations are material or discursive configurations or patterns that allow one perspective to maintain hegemony within a system. In the context of this dissertation they are material or discursive aspects of the Web which encourage the hegemony of Western or Southern perspectives within digital spaces, and therefore minimize the likelihood that Inuit perspectives will can encourage the widespread transformation of dominant ecological imaginaries. Striations are explored more in Chapter 3.

conversations with other ways of knowing and relating to the environment. One such system of thinking is offered by *Inuit Qaujimaningit* (IQ), or Inuit knowledge[6]. This chapter details how the increasing dialogue between Western science and IQ is representative of the types of encounters across difference that I seek to examine in this project. The chapter then describes how the relationship between Western science and IQ has long been defined by epistemological colonialism and hierarchy. These conditions allow me to ask whether digital technologies and practices offer any tools for escaping historical hierarchies. This makes Arctic environmental discussions an ideal case study for understanding whether digital encounters across difference allow space for more epistemologically pluralistic forms of dialogue.

**Chapter 3** then offers a theoretical framework for analyzing digital encounters as they emerge online. I argue that dominant digital theories have not been effective at conceptualizing encounters across epistemological difference, particularly within postcolonial contexts. I argue that an appropriate framework must be capable of theorizing both the negative and positive dimensions of knowledge politics within indigenous postcolonial contexts. The chapter reviews democratic, domination-oriented, and resistance-oriented theories of digital politics developed across literature in geography, communication, and political science, and argues that they do not offer these capabilities. I go on to develop a novel theorization of digital politics, using a

6 It is far more common to see reference to the term *Inuit Qaujimajatuqangit* rather than *Inuit Qaujimaningit* when referring to IQ. *Inuit Qaujimajatuqangit* literally means 'that which has long been known (and continues to be known) by Inuit'. However, some Inuit thinkers have criticized the term for its incorporation of the morpheme -jaq-, which gives the term a passive meaning (Arnakak 2002, 2004). The focus of the term is on people as a passive recipient of (ancient) knowledge, rather than on the knowledge itself. For this reason the term *Inuit Qaujimanituqangit* has been suggested as a replacement (Arnakak 2002). This phrase substitutes in the morpheme -niq-, the infinitive marker, to shift focus on the knowledge itself and to remove the passive connotation of the term. However, both of these terms share another problem—Arnakak (2002, 2004) argues that their inclusion of -tuqaq- places too much emphasis on the ancient aspect of Inuit knowledge. He worries that this makes Inuit knowledge appear too static and incapable of adaptation to contemporary life. He suggests the simpler term *Inuit Qaujimaningit*, or just 'Inuit knowledge'. For the reasons put forward by Arnakak, I will adopt this term throughout the paper, unless I am specifically addressing IQ in the context of its adoption as the official value system of the Government of Nunavut (GN). In the latter case I will use the term *Inuit Qaujimajatuqangit*, since this is the term used by the GN. I will also defer to spellings used in quotes from other sources.

combination of Deleuzian and postcolonial theory, to analyze Inuit-qallunaat digital encounters. My theoretical framework understands postcolonial politics as a both a process of producing mediating concepts and practices, that can tie indigenous and settler societies together in ethical and pluralistic relationships, and of producing striations, that prevent these relationships and instead ensure the continuation of violent (material and discursive/epistemological) hierarchies. This framework is uniquely capable of highlighting both the productive and assimilatory aspects of digital dialogue across difference, and represents a key theoretical contribution to the study of digital geographies.

**Chapter 4** introduces the methodology I used to answer my research questions. I employed a mixed methods analysis of data collected in both digital sites, including Web pages and social media platforms, and the physical site of Igloolik, Canada. For the digital component of the project I collected Web pages from fifteen different sites that all have different relationships to individuals or organizations related to the Arctic. I analyzed these pages using a combination of computational and critical, qualitative methods. This analysis was designed to characterize current forms of environmentalism as they are being articulated online, to identify mediating concepts that bring different epistemologies together to discuss common notions, and to identify patterns of striations. The research in Igloolik, which employed a combination of participant observation, archival research, and semi-structured interviews, was designed to extend my analysis to issues of causation. Most importantly, I asked Inuit participants about technological and discursive constraints on their participation within digital discussions. These many different datasets and methods offer rich insights into the complex Inuit-qallunaat relationships emerging online.

Chapters 5 – 7 explore the striations of the Web that extend the hegemony of Western

science over IQ. **Chapter 5** describes how the materiality of Internet infrastructure has intersected with the colonial and economic conditions of Inuit communities to erode in situ social spaces and practices that transmit IQ. These conditions have produced digital practices within Inuit communities that trade off with time spent socializing in person within the community, learning from elders, or traveling out on the ice. This decreases the quantity and quality of time spent participating in the embodied and experiential practices necessary for the acquisition of IQ, and replaces it with time spent engaging with representational models of knowledge transmission. As a result, these material conditions directly diminish the likelihood that Inuit will be IQ-holders themselves. I argue that these conditions actively shape how Inuit can represent themselves and their knowledge online, and often preclude the very possibility that they will be able to share IQ. **Chapter 6** then shifts to an examination of digital materialities, practices, and norms that ensure that Western science has differentially more access to digital spaces than IQ. The high costs of technology access, the high prevalence of antagonistic forms of digital politics, and tendencies toward stratification and reductionism within digital content production all function to make the Internet less conducive to spreading IQ. This has produced a hierarchy in which Western science is generally represented as a highly visible, universalistic epistemological system, while IQ remains highly localized. This makes Inuit less able to choose to make IQ visible to broad audiences on the Web, and reduces the possibility of pluralistic exchanges between Inuit and qallunaat. In **Chapter 7** I then turn to an examination of the digital practices that flatten and co-opt IQ when it does emerge on the Web. This chapter examines the role of representations of the Arctic environment, citation and linking practices, and other forms of knowledge politics that frame Inuit knowledge as instances of empirical observations rather than as part of a comprehensive epistemological system. This reduces IQ such that it can be

subordinated to and integrated within Western scientific frameworks. This reinforces the hegemonic power of Western science within digital spaces, and ensures that IQ is either never heard at all or only heard as translated through highly southern logics.

Despite the many difficulties and concerns related to engaging the Internet, my participants almost invariably expressed an optimism about digital engagement. Similarly, digital texts across the many Inuit sites that I analyzed very commonly expressed a desire to cooperate with the international community. At least in the context of climate change politics, Inuit have often rejected a politics of incommensurability in favor of a more coalitionary politics that allows Inuit to work with qallunaat to build a better future for themselves. This mirrors historical tendencies of Inuit to adopt some qallunaat political strategies within national or global spaces to increase their own local control of their lands and culture. In **Chapter 8** I discuss these political tactics in the context of mediating concepts and practices. In contrast to the preceding three chapters, this chapter highlight the potential of the Web for encouraging pluralist and non-hegemonic epistemological discussions. I describe the emergence of two different sets of mediating concepts and practices – consultation and adaptation – that have emerged out of digital encounters between Inuit and qallunaat and allow them to produce common notions of the Arctic environment. In each case these mediating concepts allow Inuit to invoke concepts from qallunaat societies, but to adapt those terms to further their own political agendas. These mediating concepts produce complex discursive sites in which qallunaat and Inuit ideas, knowledge systems, and political goals are blended together. While Inuit face some danger of marginalization and assimilation by engaging with these concepts, they also bend qallunaat concepts to incorporate more ideas based on IQ. I argue that these mediating concepts offer key examples of how the Web might be used to encourage meaningful cooperation and

transformative encounters between very different groups, even if those groups ultimately hold incommensurable political goals and views.

This dissertation extends current thinking about digital politics from concerns about empowerment and marginalization to questions of the co-production of knowledge across deep epistemological difference. In doing so the project offers important insights into the limits of the connective and transformative capabilities of digital technologies. The representational spaces of these technologies often fail to capture key aspects of indigenous knowledge systems, making it difficult for them to communicate those aspects to others. Participants in my study found that time spent on the Internet was directly trading off with the time they spent out on the land. Since the Inuit knowledge system places great emphasis on experiential learning, being on the land, and interacting with others, this trade off damages knowledge transmission. The material limits of technology in the Arctic—from lack of infrastructure to inability to withstand frigid temperatures—amplify these problems. The normative aspects of Inuit relationships to animals, often couched in seamless discussions of cosmology and culture, are often not expressed on the Web. This leaves Inuit knowledge reduced to its empirical components online, and vulnerable to being fit within broader Western scientific and political frameworks. As a result, the normative ontological conditions that make IQ meaningful and political are replaced by Western ontologies. These findings reveal that the epistemological and material foundations of digital technologies produce complex absences across the Web, such that their potential for encouraging meaningful encounters between indigenous peoples and others remains limited.

Despite these major limitations of the Web, many Inuit nonetheless remain optimistic about its long-term potential. Through an examination of this optimism as it relates to mediating concepts and practices, this research reveals tactics that can facilitate digital cooperation across

difference. Critically, Inuit ground these tactics in a broader material understanding of the effects of the digital—technology can produce empowering relationships only if it helps to encourage users to physically interact more with elders to record Inuit knowledge, if it brings qallunaat up to the Arctic to better understand the lives of Inuit, or if it helps Inuit to more effectively and safely get out on the land. In their eyes the Internet is a place in which interepistemological dialogue can first emerge, but should not be the end goal of the politics that flow from this dialogue. This research offers a novel, indigenous perspective on the interconnections between the digital and material aspects, and effects, of technologies.

While the primary purpose of this research is to explore the nature of digital encounters across difference, my analysis also offers other contributions. First, the project helps advance theorizations of the epistemological politics of climate change. Climate change is a global problem requiring global solutions, and the Internet may provide an important forum for global publics to discuss these solutions. However, few studies have examined the political importance of ICTs for climate change policy, or their implications for those most marginalized by the changing environment. Second, my research offers lessons for indigenous studies—Inuit have relatively more access to the Internet than many indigenous peoples, and offer an important early case for how digital politics may affect other groups. Finally, this dissertation uses a unique mix of quantitative methods from the digital humanities, qualitative methods, and postcolonial theory across a range of digital and physical sites. It demonstrates that such a mixed-methods approach is uniquely capable of revealing the subtle absences and power relations that shape digital politics, and offers a methodological model for future work in digital geographies.

## 2. The Arctic as Analog: Disconnects in Environmentalism

"We have the means to limit climate change. The solutions are many and allow for continued economic and human development. All we need is the will to change, which we trust will be motivated by knowledge and understanding of the science of climate change." -RK Pachauri, Chair of the Intergovernmental Panel on Climate Change

"The greatest peril of life lies in the fact that human food consists entirely of souls. All the creatures that we have to kill and eat, all those that we have to strike down and destroy to make clothes for ourselves, have souls, like we have, souls that do not perish with the body, and which must therefore be propitiated lest they should revenge themselves on us for taking away their bodies." -Ivaluardjuk, Iglulingmiut

### *2.1 Introduction: Ethics in the Anthropocene*

The digital encounters explored in this dissertation are emerging as a direct result of material shifts in the global environment related to climate change. The seriousness of these environmental issues to the physical sciences is well represented by their discussion of the Anthropocene (Johnson et al. 2014). Eugene F. Stoermer, a biologist, first coined the term in the 1980s, and then atmospheric chemist Paul Crutzen more broadly popularized it around 2000 (Crutzen and Stoermer 2000). These two physical scientists define the Anthropocene as a new geological epoch, succeeding the Holocene, in which human beings have emerged as the central geological force shaping the global climate and environment (Crutzen and Stoermer 2000). While recognizing that an exact start date is somewhat arbitrary, they argue that evidence of the Anthropocene has been increasingly evident since the late 18$^{th}$ century. Since that time expanding human populations have driven processes of rapid urbanization, exploitation of natural resources, emission of greenhouse gases, biodiversity decline, shifts in the geochemical cycles of large water systems, and much more (Crutzen and Stoermer 2000; Steffen et al. 2007). The concentration of greenhouse gases in our atmosphere has dramatically increased, which is, in turn, driving atmospheric and ocean warming (Cook et al. 2013; IPCC 2013). Pievani (2013) argues these rapid shifts are so extreme that they provide the necessary conditions for a sixth

mass extinction on Earth. His historical analysis reveals that human beings effecting global biodiversity more than asteroid strikes, and that our presence on the earth may have become intrinsically unsustainable (Pievani 2013).

The Arctic is feeling these effects more dramatically than anywhere else on the planet, and many scientists regard the region as the 'canary in the coal mine' for climate change (NRDC 2005). The Arctic is already experiencing warming, ice melt, a decline in permafrost, increased precipitation, and increased climatic variability and extremes (Barber et al. 2008; Haalboom and Natcher 2012; Pfeffer 2011). It is highly probable that these changes in the physical environment will have dramatic, long term effects on Arctic organisms ranging from the smallest microbes up to megafauna such as seals and polar bears (e.g. Amstrup et al. 2007; Arrigo 2013, 2014; Hallowed et al. 2013; Post et al. 2013; Stabeno et al. 2012). And, in fact, many of these shifts, to the climate, the physical landscape, and animal populations, are already being well-documented by indigenous peoples like the Inuit (e.g. Gérin-Lajoie et al. 2016; Krupnik et al. 2010; Leduc 2010; Watt-Cloutier 2005). Ongoing disruptions of primary producers in the Arctic Sea, the disruption of migration cycles and animal movements by ice melt, and the introduction of new species will have intensifying effects that will ripple through the entire Arctic food web (Post et al. 2013; Sakshaug and Walsh 2000). Arctic communities have already felt many effects of these environmental changes, including disruptions to their infrastructure and transportation networks, declines in health, forced relocations, shifts in regional economies, declines in subsistence harvesting, and declines in indigenous lifestyles and knowledge systems (Ford et al. 2012; Haalboom and Natcher 2012; Harvald and Hansen 2000).

In response researchers and policymakers have proposed a range of possible solutions designed to expand the stability of regions like the Arctic. Resiliency theory has strongly driven

many of these policy proposals. Resiliency theory arose within the discipline of ecology in the 1960s and 1970s, but has more recently been expanded to incorporate the broadened role of socio-ecological systems in determining the long-term stability of ecosystems (Adger 2000; Berkes 2012; Folke 2006; Pisano 2012; Ruhl 2004). This expanded perspective emphasized resiliency, adaptability, and transformability as the three key attributes that determined the trajectory of socio-ecological systems (Walker et al. 2004). Within this framework resiliency is defined as the "capacity of a system to absorb disturbance […] so as to still retain essentially the same function, structure, identity, and feedbacks," (Walkler et al. 2004, 6) while adaptability is largely described in terms of human actions that can be used to prevent systems from reaching critical thresholds. Movement past these thresholds would produce system-wide collapse. The transformability of a system describes the system's ability to fundamentally shift its own patterns and rules to allow for "the emergence of new trajectories." (Folke 2006, 259) Transformation can avoid system-wide collapses, but nevertheless result in the emergence of a fundamentally different system.

Policymakers have broadly demonstrated a strong preference for management strategies that bolster the resiliency and adaptability of socio-ecological systems, rather than calls for transformation (Evans and Reid 2014; Moore 2016; e.g., Carmack et al. 2012; Ford and Smit 2004; Smit and Wandel 2006). This reflects a broader tendency in Western political economic systems to seek solutions to ecological problems in the form of technically-oriented management measures or through market-based technological innovation, rather than through the transformation of social and political values (Folke et al. 2010; Moore 2016).

However, researchers, environmentalist groups, and public figures argue that these technical approaches are no longer sufficient they leave intact the deeper social logics produce

ecological destruction (Braun 2006; Clark 2011; Kohn 2013; Leduc 2010; Morton 2010). They point out that the economic activities that produce greenhouse gases are only one manifestation of a wider inability to relate to the world in an ethical and sustainable manner (Haraway 2016; Moore 2016; Morton 2010). As a result scholars increasingly seek avenues to push for more fundamental transformations of societal relationships to nature.

They have highlighted philosophies, ideas, and even religions that might provide a different normative foundation upon which to base nature/society relationships. Inspiration for this transformation varies dramatically, with examples including ecological thought (Morton 2010), alter-politics (Hage 2015), geocommunism (Saldanha 2013), flourishing in the Chthulucene (Haraway 2016), a parliament of things (Latour 2005), geophilosophy (Deleuze and Guattari 1996), and much more (e.g. Heikkurinen et al. 2015; Purdy 2015; Schmidt et al. 2016; Yusoff 2016). For this dissertation, the important aspect here is not the content of these particular philosophies, but rather, the fact that the current environmental crisis has produced an opening in which these philosophies might matter to a broader segment of the population. The public is increasingly engaged in a debate over the scientific techniques that Western societies have historically used to know the environment; over the ontological and normative systems that Western societies use to determine whether and why that knowledge matters; and the political processes utilized to transform knowledge and value into action. Moreover, this debate requires inspiration from other epistemological, ontological, normative, and political systems if it is to arrive at any sort of rigorous conclusion. It therefore requires the exact types of encounters across difference that I want to ask about with this research.

In this chapter I argue that Inuit perspectives on climate change offer important resources for southern societies attempting to rethink their relationship to nature. And, in fact, Inuit have

argued this themselves. In a presentation to the Government of Nunavut, Inuit leader Sheila Watt-Cloutier argued that the "Inuit view and approach to consensus building and healing, the essence of *Inuit Qaujimajatuqangit*, is relevant to a world driven by self-interest" (Watt-Cloutier 2002 qtd in Johnson 2014, 168). Qallunaat researchers have noted similar opportunities presented by Inuit wisdom. Based on conversations with Inuit philosopher Jaypeetee Arnakak, Timothy Leduc (2010, 2011) argues that Inuit relationships with the Arctic environment offer an ethical model that challenges how southerners view and act toward the world. He argues that "a sustainable and just response to northern warming and global climate change may depend on our capacity to inspire climate research and politics with something akin to *silatuniq* [Inuit wisdom]." (Leduc 2011, np) Nuttall (2010) similarly wonders whether Inuit views might help to imbue environmental decision-making processes with a much-needed sense of enchantment, that might allow us to escape the technocratic straight-jacket of current management practices. Inuit wisdom is based not only on empirical, ecological knowledge, but also on cultural and spiritual understandings of the world that contrast with the dominant southern logics described in this chapter. These descriptions make it clear that Inuit epistemological systems are intrinsically tied to broader normative and political systems, and necessarily offer an alternative to reductionist or technical approaches to environmental management. Because of these differences, interactions between Western and Inuit understandings of climate change offer an important opportunity to understand encounters between different epistemological systems.

Already, the opening quotes to this chapter have pointed to some of the differences between Western and Inuit understandings of the environment. The first two sections in this chapter trace out these epistemological, ontological, and normative differences between Western and Inuit knowledge systems in more detail. In Section 2.2 I describe Western science as a

knowledge system characterized by empirical, abstract, and often reductionist principles and by an eschewal of normative frameworks in favor and technical management. I argue that Western scientific systems, in their drive to become purportedly neutral and objective, have externalized their normative values to other (political, social, and economic) systems within Western societies. In contrast, Section 2.3 describes Inuit knowledge systems as rooted in an ontology that seamlessly blends social, empirical, and spiritual realities. This ontological view of the world has given rise to an epistemology that emphasizes personal experience and relationships in knowledge productions. Furthermore, this knowledge system explicitly emphasizes the importance of ethics as a prerequisite to entering relationships – even knowledge-based relationships – with the environment. This means that Inuit have tightly integrated normative principles into their epistemological system. I argue that these differences in epistemological systems have political implications – compared to Western science, IQ is *more capable* of challenging the dominant normative principles that guide Western relationships to the environment because it contains its own ethical and political values. The inclusion of IQ into climate change discussions could, as a result, produce new types of transformative encounters.

Of course, Western and Inuit knowledge systems have not been firewalled apart from one another, and the colonial realities of the Arctic have ensured that Inuit views are increasingly shaped by ideas from the south. In the final section of this chapter I examine some of the contemporary interlinkages between IQ and Western science as they have emerged within non-digital spaces. I describe how processes of marginalization, assimilation, and cooperation have led these two systems to be mutually constitutive, but in asymmetrical ways. I argue that, despite this contact, differences remain between the two systems and that these differences have important political implications. However, I find that Inuit have historically had some difficulty

in fully actualizing the political potential of these differences within legal and institutional spaces. Given the deep colonial history of these sites, they remain laden with material and representational factors that work against the success of Inuit political demands. These conditions – the existence of two knowledge systems that differ in their relationship to environmental politics, as well as the failure for equal encounters between these systems to emerge in non-digital political spaces - provide an ideal case study for examining whether digital spaces offer a less constrained environment for the emergence of encounters between Western and Inuit views.

*2.2 The Arctic Environment: Southern Scientific Narratives*

In this section I explore the characteristics of the positivist and post-positivist paradigms of science currently used to model the Arctic environment. I argue that these knowledge systems are highly empirical, abstract, reductionist, and oriented toward neutral objectivity in ways that limit their ability to produce normative arguments for the transformation of socio-ecological systems. Rather, these systems tend to produce technical knowledge and methods that are easily enrolled in other political and normative systems. These characteristics have important implications for the types of environmental politics that can be inspired by Western scientific research, and they also differentiate Western science from IQ.

Positivism is a Western tradition of thought that can be most directly traced back to the early 19$^{th}$ century work of August Comte (Giddens 1978; Zammito 2004). According to Comte the history of science has been a progression through three distinct stages: theological, metaphysical, and positive. This last, positive stage is strongly based on principles of empiricism. It can be directly viewed as an extension of Hume's empiricism, and more broadly as part of a Western attempt to divide transcendental and empirical attributes of the world (Clark

2011; Latour 1991). As Zammito (2004) points out, “nothing was more odious to Comte than recourse to transcendent or metaphysical categories, in other words, to anything which postulated the reality of what could not be confirmed by sensory observation.” (7) Comte's positivist science emphasized that the natural world operates according to objective laws that can be drawn from material reality by following an empirical, scientific method. Positivism ascribes epistemologically to a reductionist form of empiricism, posits a materialism ontology, and follows a natural-scientific method. After Comte positivism was popularized in the social sciences by sociologists such as Emile Durkheim, and in the physical sciences by scientists including Jules Henri Poincaré and Pierre Duhem (Zammito 2004). Within the biological and environmental sciences, positivist frameworks encourage views of the environment as homeostatic, linear, and equilibrium-seeking. Nature can be perfectly represented as a closed set of describable variables, meaning that definitive solutions to environmental problems can be determined through careful and objective modeling of empirical data (Berkes 2012).

More recent scientific research into the effects of climate change on the Arctic are more likely to be based on post-positivist science. Post-positivism seeks to amend, but not completely reject, positivism based on challenges presented by philosophers of science such as Karl Popper (e.g., 1992 [1935]) and Thomas Kuhn (e.g., 1970 [1962]). Post-positivism continues to assert the existence of an empirical and objective reality, but better recognizes the difficulties inherent in uncovering truths associated with that reality (Zammito 2004). It recognizes both that human biases are inescapable in the study of the natural world, and that the natural world is far more complex than many positivist methods postulated. In the environmental sciences, post-positivist paradigms view ecosystems as complex, adaptive systems characterized by higher-order emergence, nonlinearity, many inputs, and resiliency (Berkes 2012; Ruhl 2004). This produces

an understanding of natural processes as constantly in flux, disordered, and chaotic to such an extent that science can never fully understand them. Post-positivist science uses approaches including complexity theory, systems thinking, evolutionary theory, and fuzzy logic to understand the likelihoods of potential environmental futures. This paradigm has given rise to principles of adaptive management, an applied approach to environmental management that emphasizes the complexity of ecological systems (Berkes 2012). Adaptive management is interdisciplinary and experimental, and it "involves multi-equilibrium thinking and attention to system integrity, focusing on ecosystem processes rather than ecosystem products." (Berkes 2012, 281)

Post-positivism has some interesting parallels to knowledge systems that lie outside of the historical Western paradigm, yet also continues to extend important aspects of positivism. Berkes (2012) argues that adaptive management resonates well with the holistic and experiential aspects of many indigenous knowledge systems because of how it emphasizes adaptation and complexity[7]. Nevertheless, post-positivist frameworks fully maintain the materialist ontology of positivism. Additionally, even if they slightly revise the degree to which science can achieve objective truth, they hold faith in empiricism and posit that the scientific method can be used to strive toward objective truth. As a result post-positivism continues to affirm the transcendental/empirical split fundamental to Western knowledge systems. Post-positivist methods also continue to rely on abstraction, extrapolation, and probability-based modeling that are not traditionally found within Inuit knowledge systems (Berkes 2012). Modeling often takes place in a lab far from the field, and relies on data that is collected remotely (Jordan et al. 2008). Many Inuit complain that southern scientists will only ever have limited knowledge of the Arctic environment because their research tends to be temporally and geographically limited to a few

[7] Arnakak (2002) hints at a similar connection between Inuit knowledge and Southern complexity theories.

sites during the summer months (Freeman and Foote 2009).

Post-positivist views of science also remain relatively marginalized within broader public and policy discussions of environmental management. My own research has revealed that many popular media representations of polar bear conservation, for instance, prefer decontextualized empirical descriptions and outmoded, positivist views of ecological theory to the more complex, post-positivist frameworks (Young 2016). Complex ecological views tend to be omitted at worst, or provided through hyperlinks at best. The resulting representations are based on a positivist science that is reductionist rather than holistic, and strives to be objective and value-free (Berkes 2012; Nabhan 1995). This positivist view is also much better at providing policymakers with the direct cause-effect relationships that they prefer to use as the basis for law. As a positivist science continues to underlie many of the landmark environmental management legislation of importance today, such as the US Endangered Species Act (Nabhan 1995; Rosamarino 2002; Ruhl 2004; Tarlock 1994). Both policies and public opinion are likely to be reflective of the most empirical and reductionist aspects of Western science.

Moreover, neither post-positivist nor positivist sciences contain normative criteria for determining how scientific findings *should* translate into policy (Ruhl 2004). They must be interpreted through other normative frameworks to produce policy recommendations. As a result environmental policies are further shaped by a complex set of political, territorial, and economic logics. For instance, because ecosystems cross geopolitical and jurisdictional boundaries, it is quite difficult for individual nation-states to deal with the management of the effects of climate change on their own. They must instead turn to mechanisms, such as bilateral agreements and multilateral policies, which require much greater political will, collective framing of responsibility, and consideration of complex political issues (Olausson 2009; Young 1996). Even

within countries, domestic policy is often impeded by feelings that actions to prevent climate change are useless because other countries will simply continue emitting greenhouse gases (Nisbet 2009; Olausson 2009). Based on this logic climate change mitigation efforts will only produce economic harm without solving the global problem—a classic economic free-rider framing of environmental policy. Even when science offers clear findings about environmental destruction, it lacks the normative framework to drive political action that might respond to those described realities.

The politics of polar bear management clearly demonstrates the complexity of these issues. Because polar bear populations extend across Canada, Greenland, Norway, Russia, and the US, complex international negotiations, agreements, and management plans are necessary to provide the animals with comprehensive forms of protection. These negotiations have not to addressed the root cause of the long-term health problems of polar bear populations—climate change. Instead they have focused on issues like hunting, because those issues have fewer economic entanglements across the different member states. For example, when the US Fish and Wildlife Service (FWS) listed the polar bear as threatened under the ESA, it was quick to emphasize that this listing could not be used to regulate greenhouse gas emissions. This was because, as Secretary of the Interior Dirk Kempthorne points out, "[t]he best scientific data available do not demonstrate significant impacts on individual polar bears from specific power plants, resource projects, government permits or other indirect activities in the lower 48 states" (Walsh 2014). The administration used the messy nature of causality in complex systems (Bergmann et al. 2009; Clark 2011) to avoid localizing the 'blame' for climate change in southern industry. They could then re-frame the issue in terms of a more direct relationship between polar deaths and hunting, even if this relationship was not the basis for most scientific projections of

polar bear population decline. This selective movement from post-positivist to positivist modeling allowed them to shield their economic interests while still appearing to take environmentally-conscious action within a scientific framework. They further relied on geopolitical narratives (e.g., climate change is difficult to regulate since it exceeds international borders, while hunting is easy to regulate within borders) and economic values (e.g., a desire to avoid negatively impacting industrial production) to produce a policy with limited scope.

In summary, traditional southern narratives understand the environment from an empirical (non-spiritual), abstract, remotely-produced, and probability-based scientific framework. While the newest forms of climate and environmental science recognize the nonlinear complexity of socio-environmental systems, the science used to drive policy is more often reductionist and purportedly neutral. Both paradigms of science are generally used to produce models that can be used to understand the likelihood of future changes to the Arctic ecosystem. By manipulating variables within these models, scientists can come to an understanding of how different actions increase or decrease the likelihood of changes to the system. This manipulation of models can then be used to influence policy decisions which dictate technical management of the environment. While positivist and post-postivist paradigms differ in their conceptualization of objectivity, they both generally eschew the incorporation of ethically normative frameworks into scientific analysis. It is this combination of a technical orientation and a lack of a fundamental normative grounding that prevents science itself from challenging the economic and political systems that defines our current relationship to the environment. Instead, science is mediated by capitalist and state-based bureaucratic logics to produce policy-based relationships to the environment that are highly technical and managerial.

*2.3 Sila*: *Northern Narratives*

Inuit communities have developed complex ontological, epistemological, and methodological views of the world that differ from Western science in important aspects. Inuit emphasize that their knowledge system is highly dynamic and adaptable, and contemporary Inuit views are constantly being shaped by the importation of southern religion, culture, language, economic practices, and more (Berkes 2012). These interlinkages, and their implications for this dissertation, are discussed more thoroughly in the next section. Nevertheless, both Inuit thinkers and southern scholars have historically identified key aspects of IQ that they believe distinguishes this comprehensive system from southern ways of thinking. This section reviews those characteristics. I should note from the outset, though, that this review is both partial and incomplete. Inuit knowledge systems are just as varied and dynamic as the Western scientific systems described in the last section, and they often vary dramatically across different regions of the Arctic (Laugrand and Oosten 2010). My description is grounded in anthropological accounts of, and my own experiences with, shared characteristics of belief systems found in Nunavut. Given both the political significance of Nunavut within the Arctic and the centrality of that territory in my research, I believe that this description is most useful for my research questions.

Ontologically the Inuit world is composed of two densely interconnected layers, one spiritual and the other material. Both are built upon a foundational world in which Inuit emerged from the earth to encounter animals (Laugrand and Oosten 2010). Because there was no light in this early world, it was often impossible to distinguish between humans and other types of animals—resulting in deep entanglements between the two. Eventually light was introduced to the world, but the close connection between humans and animals remained. Many Inuit narratives describe how particular species of animals originated from the human body—the

narwhal from an older woman, seals from the fingers of a young woman, and the ptarmigan from a scared or abused child (Freeman and Foote 2009; Laugrand and Oosten 2010; Pelly 2001). Not only can some humans turn into animals, but some animals—such as the polar bear—can temporarily take on a human form. Both humans and non-human animals are composed of the same spiritual essence, meaning that human lives are no more valuable than the lives of the animals with which they share their Arctic home. Even physical features, from the sea to the sky, are governed by spiritual agents, or *inua*[8] (Stuckenberg 2007). These non-human beings are deeply moral agents, and form a link between the ethical comportment of Inuit and the material conditions of the environment. For instance, Inuit believe that *Sedna*, the owner of the sea; *Sila*, the owner of the sky; and *Narssuk*, the son of *Sila*, produce bad weather or traveling conditions if they are angered by human behavior (Laugrand and Oosten 2010; Stuckenberg 2007). Some Inuit view climate change as a reaction of these beings to current human disregard for the natural world. Of course, the material backdrop to this spiritual world is one of the least ecologically productive and least hospitable environments on earth, and prone to rapid and drastic changes (Nuttall and Callaghan 2000). Inuit dwell within a world that is ontologically perilous along both spiritual and material dimensions.

To survive in this world, Inuit have developed a highly adaptable and complex epistemological system (Arnakak 2002, 2004). Tester and Irniq (2008) describe IQ not as holistic—since, they argue, holism is a Western concept that does not quite fit the Inuit way of thinking—but as seamless, in that it does not contain divisions between spiritual, empirical, or

8 The term *inua* is most literally translated to mean the master or owner of a thing, but this ownership can be physical or spiritual. For instance, Dorais (2014) compares the idea of a dog's physical owner (*qimmiup inua*, the dog's owner) with the spiritual master of sea-ice (*sikuup inua*, the person of the sea-ice). In the spiritual sense, *inua* is a master of environmental materialities in the sense that it animates them. Inuktitut also contains many other concepts that describe the spiritual foundations of human beings. For instance, *tarniq* (soul), *anirniq* (breath), *atiq* (namesake), *isuma* (thought), and *sila* (intelligence) are all important components of a person's psychic body (Dorais 2014).

socio-cultural forms of knowledge. This seamlessness allows Inuit to use IQ to negotiate both their spiritual and material relationships with others. It is also a key differentiator between IQ and Western science—where Western science is compartmentalized away from any normative value system, IQ closely unites knowledge, ethics, and material practice.

IQ emphasizes learning as an experiential, relational, contextual, and deeply personal process. For IQ holders knowledge must be produced through embodied practices out on the land[9] (Arnakak 2002, 2004). This stress on experiential learning not only recognizes the deep interconnections between thought (*isuma*) and material action, but also supports Inuit in their need to interpret and adapt to changing and inhospitable conditions (Cameron 2015). Knowledge is not something to be held and recited, but a set of skills that must be constantly practiced and adapted to a changing world. Once again, this aspect of IQ differs dramatically from Western science, in that science is capable of producing knowledge remotely from an area.

Another key difference between IQ and Western science lies in their conceptualizations of knowledge-holders and knowledge transmission. Under IQ Inuit are not to pass along knowledge that they did not personally and experientially acquire for themselves. Furthermore, people should not trust knowledge that does not come directly from someone that they personally know, and preferably from an elder. These characteristics make the knowledge-holder just as important as the method by which the knowledge was originally produced:

> Each elder has his or her own knowledge, and it is absolutely essential that this knowledge be seen as related only to that particular elder. Once the source, more specifically the name of the elder, is lost, the knowledge loses its roots and becomes devoid of much value to most Inuit. (Laugrand and Oosten 2010, 20)

9 In fact Inuktitut differentiates between learning by doing, *pilimmaksaq-*, and learning by receiving teaching, *ilinniaq-*. The former is a more traditional form of learning, while the latter refers to the introduction of Western forms of classroom-based learning. Cameron (2015) adds another term to the pair, *ajurungniiqsaq-*, or "to become more capable and self-reliant, so that one might help others to be capable." (31)

Furthermore, there is a strong preference to keep knowledge private, except when it comes to sharing with one's own family:

> The modern idea that knowledge should be shared and that elders should pass on their knowledge to youth does not always agree with the elders' conviction that they should only pass on important sensitive knowledge to their own relatives. Knowledge is not valued for its own sake, but for its efficacy. It is passed on because it will help people to survive and prosper. (Laugrand and Oosten 2010, 18)

This is a far more relational, subjective, private, and personalized model of knowledge transmission than is allowed by Western science, which instead emphasizes objectivity, separations between knower and knowledge, and open communication. IQ further incorporates a range of political and ethical values—the system stresses respect, generosity with family, consensus-based decision-making, adaptability, practicality, and more (Berkes 2012; Cameron 2015). These values directly shape Inuit views of politics, as cooperative, communal, and holistic, and economics, as rooted in family, sharing, sustainability, and subsistence living off the land (Heininen and Southcott 2010; Young 2016).[10] Inuit often extend this political emphasis on cooperation and the communal production of identities beyond Inuit communities in order to emphasize their desire to cooperate with qallunaat on political matters (e.g. Watt-Cloutier 2004). This differentiates Inuit political thinking from some other forms of indigenous and postcolonial theory that more strongly emphasizes the incommensurability of indigenous and non-indigenous

10 Of course, processes of globalization have dramatically transformed Northern economies, replacing many subsistence practices with wage labor, engagements with commodity markets, and much more (Cameron 2015; Huskey 2010;Heininen and Southcott 2010). Even economic engagements with hunting and animals have changed—the Hudson Bay Company increased the reliance of Inuit communities on the sale of seal fur, and then the Greenpeace anti-sealing campaigns shifted this reliance to the sale of polar bear pelts (Cameron 2015). It may be tempting to argue that Inuit economies no longer differ substantially from southern economies, and do not offer an alternative to the economic relationship to the environment described in the opening to this chapter. I, however, tend to agree with Cameron (2015) when she argues that Inuit engagements with globalized markets remain ambivalent, rooted in the Inuit value system, and hopeful. She argues that Inuit do not view economic markets through the logic of profit, but rather "in the hope that money and waged work might resolve some of the suffering that marks people's lives, support access to the land, and build a sense of purpose and pride for young people." (Cameron 2015, 109) While Inuit accept an increasing relationship with money, they continue to stress that this relationship must remain subordinated to their relationship with their land, their families, and their values.

political goals (e.g. Tuck and Yang 2012). As a result the theoretical framework that I develop in Chapter 3 strongly emphasizes the importance of understanding the positive and cooperative aspects of Inuit-qallunaat encounters, in addition to the epistemologically violent aspects of those encounters.

While IQ has long existed as a living system, its formalization into a named system has a much shorter history. According to Arnakak (2002) the term *Inuit Qaujimajatuqangit* was first proposed during a 1998 meeting of the NSDC, although Alexina Kublu ties the term back to an earlier 1995 meeting of the Inuit Studies Program (CURA 2000). Attendees at these meetings produced the concept so that Inuit values could be officially incorporated into the daily operations of the Government of Nunavut, and they designed IQ to incorporate both traditional and contemporary values and practices. The official GN framework lists eight primary principles of IQ:

1. *pijitsirniq*—serving and providing for; social responsibility
2. *aajiiqatigiingniq*—decision-making through conference
3. *pilimmaksarniq/pijariuqsarniq*—development of skills through observation
4. *piliriqatigiingniq/ikajuqtigiinniq*—collaboration; working together toward a common cause
5. *avatimik kamattiarniq*—environmental stewardship
6. *qanuqtuurunnarniq*—the ability to improvise or adapt
7. *inuuqatigiittiarniq*—respecting others
8. *tunnganarniq*—fostering good spirits by being open (Government of Nunavut 2013)

Tester and Irniq (2008) further add *iliijaaqaqtallniq* (not treating animals with disrespect) and *papattiniq* (the view that nature is not a commodity) to this list. This epistemological system views knowledge as experientially-produced, seamless, personal, social, practically-oriented, and normative. As a result, 'knowing' the environment is not a process of objective measurement and modeling, but is instead the development of a close, personal, and ethical relationship.

These ontological and epistemological views have shaped a methodological view of how

one should interact with the environment, which heavily contrasts with the techno-bureaucratic managerialism of Western environmental management. The most powerful and direct way to engage with spiritual beings was traditionally to rely on help from an *angakkuq*, or shaman. Aided by *tuurngait* (helper spirits), *aarnguat* (amulets), *qalugiujait* (miniatures), *irinaliutiit* (powerful words), and various rituals, *angakkuit* were capable of interfacing directly with the spirits of the land to guarantee successful hunts, perform rituals of healing, change weather conditions, receive knowledge from afar, and much more (Laugrand and Oosten 2010). While the widespread adoption of Christianity has diminished the official position of *angakkuit* in many communities, my experience in Igloolik demonstrated that many Inuit believe that these shamans continue to play an important role in the Arctic. Even without the availability of an *angakkuq*, though, Inuit without can and must still interact with the spirits of the land and animals. As this chapter's opening quote indicates, Inuit find themselves in a difficult position because they must consume animals, who have spirits, to survive. In other words, Inuit live in a world in which they must literally consume the flesh of those who are ontologically equal to them (Laugrand and Oosten 2010; Leduc 2010). Moreover, the spirits of animals do not die with the bodies of those animals—they live on and can exact revenge if they believe they were disrespected during the hunt. Inuit believed that animal spirits join other animal spirits and discuss how Inuit treated them when they were hunted. If the hunt was done disrespectfully, the spirit would try to convince other spirits not to return to an embodied form that could be hunted again. In contrast, if the hunt was done respectfully then the spirit would look forward to its reincarnation. Respected animals enjoyed sharing their bodies with Inuit hunters. Based on these dynamics Inuit have developed a complex set of *pitailiniit*, or hunting rules and rituals, that govern how they can respectfully hunt animals (Laugrand and Oosten 2010; Leduc 2010; Nuttall 2000). By

following these rules and practicing appropriate relationships with the material world around them, an Inuk can develop into an *inummarik* or genuine person (Stevenson 2006; Tedford Gold 2007). Because of these views "Inuit relate to animals not as dominators, managers, or even stewards of wildlife […] but as co-residents who share the same conceptual ideology." (Wenzel 1991, 62) This stands in stark contrast to the technical and managerial approach to the environment described in the last section.

*2.4 Analog Encounters: Co-Management of the Arctic*

Where the past two sections highlighted differences between Inuit and qallunaat knowledge systems, this section explores their messy, historical entanglement. Representing these systems as being in binary opposition to one another risks participating in some of the same processes of colonial and epistemological violence that have placed many Inuit communities in their current marginalized positions. The construction of idealized, ideological binaries often leads to representations of indigenous peoples that are static and mythologized rather than dynamic and interacting with the current world (Berkes 2012). To work against such a representational politics, this section examines Inuit-qallunaat epistemological relationships as a set of messy epistemological borderlands (Anzaldúa 1987; Vila 2003) that encourage hybrid practices (Bhabha 1994a, 1994b; Katz 1994). Over time Inuit have increasingly and more consciously chosen to engage with qallunaat political and epistemological frameworks, in order to increase their control over decision-making processes within the Arctic. While these engagements have resulted in important and substantial political victories for some Inuit communities, they also tend to reinforce deep asymmetries between Inuit and qallunaat epistemological systems. The problem I describe is not one of the two systems coming together, but rather the structural manner in which their hybridization flattens, subsumes, and assimilates

IQ within southern systems. Southern systems are thereby normalized as the broader container within which IQ must be made to fit.

The historical context for Inuit-qallunaat encounters is one of settler colonialism—the Canadian Arctic has a long and ongoing history of occupation and wealth extraction (Cameron 2015). These processes are both material and epistemological in nature. During the late 17th century whalers and fur trappers, especially those working for the Hudson Bay Company, dramatically increased their trade with Inuit (Amagoalik 2012; Chaturvedi 2000; Penikett and Goldenberg 2013; Simon 2009; Tester and Irniq 2008). This trade tended to have a centralizing effect on Inuit, because families moved toward trading posts, and increased Inuit reliance on southern products. This marked the beginning of a shift from exclusive reliance on subsistence hunting for livelihoods toward market-based living. Second, during the 20th century a much larger set of processes, including missionary influence, residential schooling, community relocations, Cold War politics, and the European Union seal product ban, had dramatic effects on communities (Chaturvedi 2000; Laugrand and Oosten 2010; Simon 2009). Missionary influence and residential schooling tore families apart, separated the newest generation from their traditions and language, and dramatically increased child abuse in ways that have had long-term effects on the mental health of the Arctic; community relocations sent Inuit to locations in which they were not prepared to survive off the land, without providing necessary support for adaptation; and sealing bans devastated the fur-based economies that qallunaat had introduced in the first place.

Inuit communities continue to face many challenges that can be directly tied back to these colonial interventions, including disconnection from land, culture, and language; degradation of natural resources; lack of access to health care, education, and job opportunities; and high

incidences of both physical and mental health care issues (Laugrand and Oosten 2010; Stern and Stevenson 2006; Stevenson 2014; Tester 2009). These issues are now being compounded by problems associated with both global environmental change and increasing globalization of the Arctic (Heininen and Southcott 2010; Leduc 2010). Ice melt can be viewed as a colonial force within the Arctic both because it is largely caused by southern economic activity, and also because has impacted the cultural and epistemological fabric of Inuit communities. Not only does Arctic warming introduce new diseases and force relocation, but it has negatively impacted traditional activities such as subsistence hunting. Hunting is a key site in which Inuit youth learn IQ, skills, and more, meaning that the material changes associated with climate change also enact unique forms of epistemological violence in the Arctic. Perversely, climate change has also opened the Arctic up to new forms of globalization, including mineral extraction, development projects, and shipping, which also threaten Inuit sovereignty and relationships to the land (Heininen and Southcott 2010).

Throughout much of this history, Inuit have not had much control over the southern policies that shaped their own lives. However, this began to change in the 1950s, as educated Inuit youth began organizing politically to reassert their collective identity and take control of their lands. As Mary Simon (2011) makes clear:

> [W]e did not reconcile ourselves to our colonization or our marginalization. We mounted a great effort, along with First Nations and Metis people in Canada, to make our voices heard. We did everything we could to reassert our say over our lands and waters of *Inuit Nunangat*. And over our future. (881)

The earliest resistance was rooted in opposition to mineral extraction projects and new regulations of hunting (Cameron 2015; Tester and Irniq 2008), but expanded dramatically in scope in the 1970s with the founding of Inuit Tapirisat of Canada (ITC). ITC, which changed its

name to Inuit Tapiriit Kanatami (ITK) in 2001, was the first pan-Canadian Inuit organization and is currently the national Inuit organization of Canada (Marecic 2000). ITC helped to initiate the negotiation of comprehensive land claims agreements in Canada, although the negotiations were eventually handed off to the Tunngavik Federation of Nunavut (TFN; later renamed Nunavut Tunngavik Incorporated, NTI). These negotiations culminated in the 1993 Nunavut Land Claims Agreement (NLCA), and then the 1999 Nunavut Act (Henderson 2009; Marecic 2000). Together these legal documents established the Canadian territory of Nunavut, granted Inuit *de facto* self-governance within the territory, made them the largest landowners in Canada, gave them rights to hunting and fishing, increased their control over economic activities in the region, and increased their participation in and right to consultation over land management decisions (Henderson 2009; Penikett and Goldenberg 2013). Perhaps most importantly for this project, the NLCA stipulated that IQ would be integrated directly into the governance system of Nunavut. This marks a key moment in the integration of Inuit knowledge and Western governance systems. Similar agreements were negotiated by Inuit in Inuvialuit (1984), Labrador (2005), and Nunavik (2008).

From the beginning, though, these struggles contained at their heart a political aporia – these victories required that Inuit engage in southern political tactics and accept extreme compromise in the political outcomes of negotiations. Young Inuit leaders, starting in the 1950s, consciously chose to adopt 'white', or activist, methods of politics that ran deeply counter to the consensual model of politics historically practiced within Inuit communities. They felt that this was necessary because this compromise-oriented and consensual form of politics appeared to be falling on death ears in the south (Cameron 2015). While this was an intentional strategy, it necessarily involved trade-offs:

> Ittinuar and Arvaluk characterize this transformation as a self-conscious and strategic engagement with colonial institutions, but Lynge points also to the more subtle ways in which Qablunaaq practices and modes of thinking could insinuate themselves into Inuit social, cultural, and political processes (Cameron 2015, 120)

The effects of these strategies represent a direct form of epistemological violence for those Inuit activists – they felt that they had to abandon their own cultural models of politics in order to achieve victories for themselves and their communities. However, the effects also extend beyond this personal epistemological impact – they were often also built directly into the epistemological structure of the institutions that resulted from Inuit struggles. For instance, the NLCA set out to create a form of government that directly incorporated Inuit values and language into everyday governance (Henderson 2009). Principles of IQ are directly adopted as values of the government, discussions in Inuktitut are widespread within the Legislative Assembly, and decisions are consensus-oriented (Marecic 2000; White 2009). However, these Inuit values are molded into a fairly standard, Westminster cabinet-parliamentarian system that contradicts those values in critical ways. As White (2009) argues:

> it becomes clear that while in important ways the operation of the assembly is congruent with traditional Inuit values, the fundamental characteristics of Westminster politics—concentration of power in the executive, highly formal procedures, aggressive confrontation, and the like—have been modified somewhat but hardly displaced. (64)

In other words, the inclusion of IQ into the GN seems to be more of a conceptual ideal than an everyday reality. These problems are amplified by continuing issues of capacity—the GN just does not have the resources to fully implement its original mandate (White 2009). This epistemological preference for southern governance logics has significant political implications. Southern values continue to frame a majority of the day-to-day interactions that occur within the GN, and southern thinking remains the dominant epistemological system shaping how people

think about politics within the GN. This is a clear instance, then, of political compromise producing a system that claims to value IQ while nevertheless subsuming it within a southern system.

These political strategies have also spilled over into international political spaces, particularly through the work of the Inuit Circumpolar Council (ICC). Founded in 1977 under the name Inuit Circumpolar Conference, the ICC represents all Inuit across Canada, Russia, the United States, and Greenland (Abele and Rodon 2011; Wilson and Smith 2011). The ICC participates within international organizations including the United Nations, Arctic Council, and Inter-American Court of Human Rights, through which it has represented Inuit on issues ranging from sovereignty to environmental change (Watt-Cloutier 2005; Wilson and Smith 2011). Inuit are increasingly interested in participating in scientific and political fora on the international stage, which presents an opportunity for them both to take more control over their lands and to inspired other populations to transform their relationships to the environment (e.g. Huntington et al. 2011; Martello 2008; Meier et al. 2006; Murphy 2011; Robards and Lovecraft 2010; Tremblay et al. 2006; Watt-Cloutier 2004, 2005). As former Chair of the Inuit Circumpolar Council Sheila Watt-Cloutier (2004) argues:

> Notwithstanding our struggles and our limited numbers, we Inuit do have a significant role to play globally. Especially now with the threat of climate change to our entire way of life, we need to capture the world's attention and conscience. (6)

In many cases these calls for cooperation are often grounded in a desire for interepistemological exchange. These Inuit leaders recognize that Western sciences offer valuable contributions from which they can benefit (NTI 2005). However, they also argue that IQ's grounding within normative frameworks offers important political inspiration lacking within Western science itself (Leduc 2010).

Once again though, the goal of fundamentally placing IQ, as an epistemological system that is both equal to Western science and that contains its own normative underpinnings, is never attained in practice (Coote 2015; Nord 2016; Young 2016b). Rather, Inuit progress is made almost exclusively from within the southern political system itself. For example, the Arctic Council was created with input from Inuit organizations, guarantees indigenous peoples a right to consultation, and has adopted a consensual form of governance that is consistent with Inuit political practice. These are promising attributes, and could make space for an international practice based around Inuit political ideals. However, there remains a very large gap between these principles and the practice of indigenous representation within the Arctic Council (Young 2016b). Structural barriers prevent indigenous organizations like the ICC from fully participating in Arctic Council activities, and invitations for consultation remain rather shallow. Many Arctic Council initiatives simply fulfill their obligation for consultation by disclosing their results to a community, rather than ensuring that indigenous voices are fully incorporated throughout all steps of the process (Coote 2015). Key barriers include a lack of resources to send indigenous representatives to Arctic Council meetings; lack of resources to allow scientists to rigorously build participatory processes into their projects; language, culture, and epistemological barriers; and much more (Young 2016b). Recognition of these barriers has resulted in several recommendations for better integration of indigenous knowledge into all Arctic Council projects (Arctic Council Sustainable Development Working Group 2015) and new funding sources for indigenous participation (see Coote 2015), but no action has been taken on these recommendations to date. This means that the primary activities and decisions of the Arctic Council are produced without rigorous inclusion of Inuit perspectives. As a result the organization reproduces the same epistemological hierarchy built into the GN.

Even when the resources and desire exist for more rigorous forms of consultation, scientific and management projects still only incorporate Inuit views in highly assimilatory manners. In a review of scientific studies that incorporated Inuit views, Murphy (2011) found that very few were actually interepistemological. Studies rarely included the full participation of Inuit researchers, and often just mention the Inuit knowledge system without fully engaging its fundamental differences from Western science. This allows these studies to then subsume Inuit knowledge within a Western scientific framework (Murphy 2011). This is consistent with observations that Traditional Ecological Knowledge (TEK) is often reduced, by Western scientists and policymakers, to its environmental and empirical components (e.g. Berkes 2012; Tester and Irniq 2008). As a result the wider social, political, and normative aspects of these indigenous systems of knowledge are rarely engaged, much less used to problematize the epistemological dominance of the frameworks embraced by most scientists. As Tester and Irniq (2008) argue, the very "language used to define and promote IQ often serves to move IQ away from its cosmological implications and define it as a tool useful for filling gaps in scientific knowledge." (48) This process leaves Western science in a dominant position and further extends colonial violence against IQ.

Even worse, government agencies sometimes only include IQ "as an appeasement necessary to getting on with the business of resource development." (Tester and Irniq 2008, 56) IQ is no longer even an empirical value, but only a procedural checkbox necessary to ensure that legal agreements are not violated (Berkes 2012). For example, Canadian co-management regimes often use IQ as one of many inputs that feed into models that determine appropriate hunting quota levels. IQ is fed into a broader scientific framework, rather than standing equal to that framework. This process naturalizes the idea that Western management models, such as

hunting quotas, are the only possible form of successful environmental management (Riewe and Oakes 2006; Robards and Lovecraft 2010). Even very basic concepts such as 'quotas' and 'biomass reproducing stocks', which are building blocks of these formal resource management systems, remain fundamentally foreign, and even marginalizing, to indigenous knowledge systems (Armitage 2005). Armitage (2005) summarizes these results, and how they are perceived in communities, in the context of community-based narwhal management (CBNM):

> There is local skepticism about formal population estimates, the monitoring and record keeping system required as part of CBNM, and the role of traditional knowledge. As a harvester in the community of Qikiktarjuaq stated, the monitoring system is foreign to the Inuit and a process harvesters historically never had to follow (see Rideout 2001). Similarly, an Inuit participant in a community consultation process remarked that while one hears about the importance of incorporating traditional knowledge into studies, reports, and decision making, one rarely sees it (Terriplan/IER 2002). Thus, although the value of traditional knowledge might be recognized, the CBNM regime is still characterized by the primacy of Western science, and ‘‘objective’’ criteria are used to set limits and confer resource access rights. (728)

This demonstrates how co-management programs are framed within Western scientific epistemologies even though they incorporate some forms of IQ into those frameworks. As a result these projects emphasize an empirical, reductionist, and neutral view of the environment, rather than a seamless view. This results, politically, in management practices that rely upon southern technical and bureaucratic orientations toward the environment. This asymmetrical relationship between IQ and science not only prevents Inuit from more fully utilizing IQ to manage their own lands, but also shuts down any possibility of utilizing IQ to spur new visions of how the broader world might engage with the Arctic environment. These institutional engagements between IQ and Western science have not offered much to aid southerners in terms of their re-imaginations of their own relationship to the environment, as is hoped for by authors

like Leduc (2011) and Nuttall (2010).

Inuit face large obstacles in their attempts not only to have their perspectives fully recognized but also to effect transformations of existing governance structures. Inuit knowledge is constantly translated such that it can fit within southern frameworks and narratives (Spivak 1988, 1992), resulting in highly asymmetrical political compromises. IQ is never engaged as a holistic system, but is instead reduced to its empirical components. This ensures that the structural conditions of colonialism continue to operate, particularly at the level of epistemology, within Arctic institutions. As a result Inuit continue to be dispossessed of the epistemological, cultural, and material resources that they require to live and to politically engage with qallunaat. This constant process of marginalization and assimilation of IQ within institutional political spaces prevents those analog spaces from being conducive to equal exchanges or encounters across difference. This not only marginalizes Inuit within political decision-making processes, but it also forecloses the possibility that qallunaat might learn something about their own environmental orientations from IQ within these institutional spaces. I shift my focus to digital spaces in the next chapter, to see if they are capable of fostering forms of politics that are less asymmetrical.

### *2.5 Conclusion*

Environmental crises associated with climate change have produced unique openings for rethinking the epistemologies and politics of how global societies relate to the environment. Inuit, along with some Arctic-based researchers, have argued that IQ offers significant resources for this rethinking. While Inuit knowledge does not form a strict binary with Western sciences, it does differ from those sciences in substantial ways. Perhaps the most significant difference is its seamless incorporation of normative principles within an epistemological system. This matters

politically in that an IQ approach to management necessarily calls for a relationship to the environment that is less capitalist and less abstract and technically-oriented. To date, however, these political implications of the inclusion of IQ into institutional governance systems have not materialized. The aporia of Inuit political activism – the fact that Inuit must adopt and make compromises with southern epistemological systems to achieve material gains – means that southern epistemologies have continued to dominate Arctic institutional politics. Policy decisions continue to be made through conflict-oriented politics that are at odds with IQ; co-management is performed in a highly technical manner rather than using the more relational and seamless approach suggested by IQ; and scientific studies consistently exclude the perspectives of Inuit elders that spend their time out on the land. Although IQ is discussed within these institutionalized policy and scientific spaces, it appears to mean little to qallunaat beyond an acronym that can be fit within pre-existing southern frameworks. In a highly Spivakian sense, IQ is talked about but IQ holders are never heard. Engagement between IQ and southern ways of knowing are highly asymmetrical and epistemologically violent.

As a result these institutional spaces deny Inuit control over environmental decision-making within their own lands, and they also foreclose the possibility that qallunaat might learn something about their own environmental practices from Inuit. This project will ask whether there are other spaces through which IQ might be transmitted more effectively to produce positive encounters across difference. I ask whether digital spaces might offer such possibilities. Of course, no space can completely escape the difficult tensions that are inherent to encounters between different epistemological traditions. The question isn't whether digital spaces do away with these aporia altogether, but rather whether they can help Inuit to open room for (even slightly) less asymmetrical encounters with southern ways of thinking. This will still involve

processes of marginalization and assimilation. My question is whether they might also present opportunities for new forms of politics and modes of listening along the way, and therefore possibilities for positive transformation for both Inuit and qallunaat. The next chapter develops a theoretical framework for use in examining the political potential of Inuit-qallunaat encounters on the Web.

## 3. The Potential for Digital Connection

"[T]he issue is not how to reach the network society as a self-proclaimed superior stage of human development. The issue is to recognize the contours of our new historical terrain, meaning the world we live in. Only then it will be possible to identify the means by which specific societies in specific contexts can pursue their goals and realize their values by using the new opportunities generated by the most extraordinary technological revolution in humankind, the one transforming our capacities of communication and enabling [us] to modify the codes of life, that is the one giving us the tools to actually master our own condition, with all the potentially destructive or creative implications of this capacity." Manuel Castells, *The Network Society: From Knowledge to Policy*

### *3.1 Introduction: Theorizing Digital Connections*

IQ has been slow to take hold within Arctic governance institutions, and it has not played a significant role in transforming climate change politics within international institutions. Despite Inuit calls for greater cooperation (e.g. Watt-Cloutier 2004) and the belief that IQ can serve as important inspiration for the emergence of new environmental politics (e.g. Leduc 2010, 2011), these international institutions have consistently included Inuit knowledge in a very assymetrical fashion such that it does not challenge normalized and southern ways of thinking. While the material struggles of transforming these institutional political spaces remains important work, I instead ask whether Inuit political struggles might find more traction in other types of spaces. Do digital spaces offer Inuit political opportunities for engaging in less asymmetrical epistemological encounters with internationally-dispersed audiences of qallunaat? This chapter develops a theoretical framework for answering this question.

This focus on the digital is inspired by a wide range of work in geography, political science, communication, and many other disciplines, which all examine the implications of information and communication technologies (ICTs) for political practice. Amongst these researchers there is broad consensus that the emergence of ICTs has had a profound effect on micropolitical and macropolitical processes across the globe. Sociologist Manuel Castells (2004)

argues that the world is going through a process of fundamental structural change driven by the development of digital networks. Digital networks both greatly augment the human capacity for information storage, analysis, and communication and also decrease the costs of accessing these capacities. Digital technologies that access these networks are cheaper than ever, relatively ubiquitous, and easy to use – meaning that more individuals now have more opportunities to produce, communicate, and use digital media than ever before (Benkler 2006; Bimber 2007; Castells 2004). Furthermore, the digital reach of these networks allow individuals to access global networks of other users, which means they have the potential to connect people to others across very large distances. This has particularly important political implications for people, like Inuit, that are located far from geopolitical centers of power but want to influence political decision-making processes. Digital networks produce a small-world effect that allows ideas to travel quickly and widely within those networks to reach broad audiences (Anderson 2008; Barabasi and Bonabeau 2003; Bennett and Segerberg 2013; Buchanan 2002; Lotan et al. 2011).

However, as the opening quote to this chapter points out, the effect of these networks is not equal for all people or places. As Castells (2004) recognizes:

> because networks are selective according to their specific programs, because they can simultaneously communicate and incommunicate, the network society diffuses in the entire world, but does not include all people. In fact, in this early 21st century, it excludes most of humankind, although all of humankind is affected by its logic, and by the power relationships that interact in the global networks of social organization. (5)

Digital technologies are not simple, material bundles of hardware and software, but are also constituted by attendant social practices, logics, and methodologies. They have particular social histories, spatial distributions, and contexts that shape how they can be used by different communities of users. As a result, access to the empowering attributes of digital networks is not

available to everyone at all times, and some individuals face very negative consequences from the emergence of digital politics. Scholars have identified a range of negative effects ranging from surveillance (e.g. Graham and Wood 2003) to neoliberal and colonial exploitation (e.g. Thatcher, O'Sullivan, and Mahmoudi 2016).

This chapter reviews current theories of digital technologies to develop a useful framework for understanding Inuit-qallunaat encounters on the Web. A strict definition of digital technology can be quite difficult to pin down, both because the meanings of the technology have changed over time and because the resulting definitions have become broad to the point of being meaningless (Kirsch 1995). Berry (2011) offers one definition of digitality as a "subtractive method of understanding reality (episteme)" via "a socio-technical device" in order to "produce new knowledge and methods for the control of reality (techne)" (12). I find this interpretation attractive because it highlights the role of digital technologies in the politics of knowledge production, and also because it identifies the subtractive or reductive process by which digital technologies engage in these epistemological politics. This prefigures some of the broader arguments that I make with regards to the inabilities of a subtractive epistemological tool to fully represent an Inuit knowledge system that is seamless. However, this definition remains quite broad. I ground it in some of the unique attributes of digital technologies that allow them to facilitate these knowledge politics. These attributes include their accessibility; their storage and analytical capabilities; their interactive connectivity; their customizability; their automation; and their situatedness in pre-existing histories and power relations. By highlighting these attributes, I better examine how each of them contributes to the unique epistemological politics that emerge within digital spaces. This allows me to develop a more detailed and rigorous theoretical understanding of how digital technologies help shape Inuit-qallunaat encounters.

In reviewing current work on digital technologies, I am seeking a theoretical framework capable of analyzing the unique dimensions of Inuit-qallunaat encounters as described in Chapter 2. Most importantly, I require a theory capable of examining the politics of compromise and consensus that Inuit have consciously chosen to pursue within international fora. It must, however, be able to do this within the unique postcolonial conditions of Inuit-qallunaat relations. In other words, this theory must recognize the impossibility of perfectly unifying Inuit and qallunaat world views, and it must offer tools to understand how politics of compromise also produce processes of assimilation, co-optation, and epistemological violence. First and foremost, then, this framework must be able to identify when politics of compromise reify violent, colonial assemblages but also when they open up new political possibilities for both Inuit and qallunaat. I describe this attribute of theory as the ability to both negatively *and* positively analyze digital politics. An appropriate theory must accomplish this while recognizing that both *material* and *representational* processes play a role in epistemological politics, and also highlighting the role of *difference* in shaping these politics.

This chapter begins with a review of existing literature on Inuit engagements with digital technologies. I find that this literature offers a nice base of empirical work from which to build, it does not offer a strong theoretical framework for understanding the capacity of digital technologies to facilitate positive Inuit-qallunaat encounters. I turn to broader sets of literatures on digital technologies. In Sections 3.3 through 3.5 I review and synthesize literature from geography, communication, and political science to identify useful theoretical frameworks for this project. I examine how these theories connect the specific attributes of digital technologies, identified above, to the particular forms of political and epistemological practices that they enable. In particular I identify theories of digital encounters, well developed in the literature, that

I label democratic, domination-oriented, and resistance-oriented. In each section I start by offering a definition of digitality as informed by each respective theory of digital encounter. I then give examples of how this description of the digital produces different interepistemological relationships, and conclude with a discussion of the openings and closures of that theory for my research. Ultimately I find that each of these theoretical frameworks has important limitations for answering the questions that I wish to pose. The end of the chapter goes on to develop a novel theorization of digital encounter, based on a combination of Deleuzian and postcolonial theory, that offers stronger tools for understanding digital, interepistemological dialogue as not only a space for personal empowerment or marginalization, but also of compromise, listening, and mutual transformation.

### *3.2 A Digital Arctic?*

Inuit have widely adopted digital technologies across the circumpolar North, and a handful of studies have already explored how they are both adopting and being affected by digital practices. To date these studies have only taken relatively limited perspectives—they almost exclusively examine the effects of technology internal to Inuit communities, rather than the ways in which technologies enable encounters between Inuit and qallunaat. This research largely maintains an anthropological interest in how digital technologies are changing the political conditions for indigenous peoples and communities, instead of asking how indigenous uses of digital technologies might also impact non-indigenous societies. These studies examine digital technologies as tools used by Inuit to interact with one another to reassert their own culture, or as a source of potential cultural assimilation for Inuit that engage with them (e.g. Alexander 2011; Broihn 2015; Castleton 2014; Christensen 2003; Dawson 2013; Fontaine 2016; McMahon 2013; Petersen 2012a, 2012b; Scobie and Rodgers 2013; Soukup 2006; see O'Donnell

et al. 2010 for a broad review of current Inuit engagement of the Web).[11]

In the former case, Inuit are adapting social media applications to pursue personal or community goals. Castleton (2014) describes how students at the Nunavut Arctic College in Iqaluit use Facebook to maintain ties to family while studying away from their communities, to make new friends, to express collective cultural memory, and to ask questions and engage in discussions. Castleton (2014) asks whether Facebook usage is having any impacts on the meanings of being an Inuk, and concludes that the technology is ultimately beneficial in allowing Inuit to enact new and empowering cultural practice. Wachowich and Scobie (2010) reach a very similar conclusion in their study of YouTube, finding that video storytelling through the application allows Inuit youth to develop localized and intimate relationships with other Inuit. Analyses of Twitter have also been added to the mix, with a particular emphasis on the #sealfie hashtag. Inuit activists created this hastag, a play on the selfie, to celebrate sealing and increase community resiliency against the colonial effects of anti-sealing campaigns (e.g. Athens 2014; Hawkins and Silver 2017; Scobie and Rodgers 2013).[12] Other studies examine how Inuit have

11 Much of this work, from anthropology and sociology, draws inspiration from Worth and Adair's (1972) Navajo Film Project, which sought to use Navajo participants as filmmakers in order to produce their own self-ethnography. This experiment resulted in many other projects which sought to harness film for indigenous empowerment (e.g. Cahlfen 1989; Elder 1995; Turner 2002), and theoretical debates resulting from this work continue across multiple disciplines and now extend to newer forms of media (e.g. Evans 2002; Ginsburg 2011; Heider 2006; Kuhmunen 2003; Landzelius 2003; Lewis 2012; Pack 2007, 2012; Pearson and Knabe 2015; Peterson 2013; Prins 2004; Sands and Lewis 1990; Vitali and Whitehorse 2003; Young-Ing 2003). These debates, which frame the theoretical focus of the studies of Inuit and digital studies described above, are often centered on anthropologist Faye Ginsburg's (1991, 1994; see Ginsburg et al. 2002 for a discussion of Inuit film) description of digital technology as a Faustian bargain for indigenous peoples. For Ginsburg technologies offered indigenous people a new and powerful tool for communication and even self-determination, but also risked cultural assimilation by acting as a conduit for other cultures to enter communities. Ginsburg ultimately believed that these technologies tended to offer more democratic benefits than harms, but urged for additional research within specific community contexts. These debates resonate closely with discussions of the tensions inherent to participatory GIS projects (e.g. Aporta 2003; Caquard 2014; Louis et al. 2012; Palmer 2012; Roth 2009; Sletto 2009; Wainwright 2008; Wainwright and Bryan 2009; Young and Gilmore 2013).

12 The #sealfie movement perhaps deserves additional attention, since it appears to be very much in line with the type of environmental politics in which this dissertation is interested. However, in my initial exploration of the phenomenon, I found that #sealfies seeemed to be more smoke than fire. While there was certainly a great deal of both popular media (e.g. Bowman 2014; Dean 2014a, 2014b; Holland 2015; Huffington Post Canada 2014) and academic (e.g. Athens 2014; Hawkins and Silver 2017; Scobie and Rodgers 2013) attention paid to

created their own specialized Web platforms or media, either for educational purposes (e.g. Alexander et al. 2009; Gearheard 2005), for economic empowerment (e.g. Santo 2004, 2008), or for solidarity-building and cultural regeneration (e.g. Christensen 2003; Evans 2008; McMahon 2013; Santo 2008; Soukup 2006).

Other studies emphasize the dangers of these technological engagements. Pasch (2008, 2010) argues that social media sites exert assimilatory pressures on Inuit through the erosion of the Inuktitut language.[13] Because these sites are most often geared toward English-language speakers, Inuit use English within these sites. As a result Inuit (1) must express their thoughts using a colonial language and (2) slowly lose familiarity with their own language. Castleton's (2014) own study, although it emphasizes the positive features of Facebook, similarly recognizes that social media applications expose Inuit youth to a great deal of southern culture, from photos to music and videos. Other researchers focus more on the economic implications of the digital, concerned that unequal access to technologies will reinforce inequalities already being produced within Inuit communities by processes of globalization (e.g. Savard 1998).

A smaller handful of studies more closely approach the goals of this dissertation, by examining specific digital projects that seek to increase intercultural dialogue between Inuit and non-Inuit. Some of these studies are more aspirational than they are empirical—arguing, for example, that digital applications can and should be built to increase the dissemination of IQ

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#sealfies, they did not actually seem to ever achieve a very large or sustained footprint on Twitter. For instance, Hawkins and Silver (2017) describe the movement as the "emergence and circulation of hundreds of #sealfies" (4), and believe that their sample of 130 tweets "captured at least some of the most popular and persistent" (4) themes. In an initial review of geolocateed tweets from the University of Kentucky's DOLLY project, I found that the #sealfie hashtag was not well represented. This is consistent with my findings that Inuit tend not to actually use Twitter all that much, and that they also tend to avoid public and contentious digital politics. I would ascribe the temporary popularity of the #sealfie movement to its publicity from public figures like Ellen DeGeneres, Alethea Arnaquq-Baril, and Tanya Tagaq, rather than as evidence that it well-represents Inuit politics online. Nevertheless, it was an important moment for digital Arctic politics, and I have incorporated others' analyses of #sealfies as one part of my broader exploration of Inuit engagements with the Internet.

13 My own fieldwork confirms Pasch's findings, but also complicates some of the reasons for this. For instance, hardware also affects digital language usage—most of the keyboards I observed in the Arctic appeared designed for English rather than Inuktitut. See Chapters 5 and 6 for additional discussion.

(Pasch 2015). Other studies examine digital applications that were built to foster very specific forms of intercultural dialogue. Scobie and Rodgers (2013), for instance, examine how Inuit organizations like Isuma Productions use digital technologies to distribute information about regional development projects. In this way digital platforms like IsumaTV can expand and improve processes of informed consent when communities deliberate over the opening of their lands and resources to these projects. This work understands Inuit digital politics within the frame of deliberative democracy, and the production of counter-publics (Scobie and Rodgers 2013). Gearheard et al. (2011) shifts focus from environmental politics to the environmental sciences, by examining the development of the Igliniit Project. This project developed a set of hardware and software tools for the collaborative collection of sea ice and environmental data by both Inuit and southern scientists. Inuit hunters install the device on their snowmobiles as they go out hunting and collect information that they believe is useful for environmental management. The goal of the project was to provide a tool that helps Arctic residents to "become more actively involved in environmental monitoring." (Gearheard et al. 2011, 49) It demonstrates how digital tools might be designed to specifically facilitate interactions between IQ holders and qallunaat scientists. Unfortunately, the tool has not enjoyed widespread use since its design, and certainly does not reach the broad audiences that I target with this project. In fact, all of the studies described above focus too narrowly on applications designed for very specific audiences and projects, and do not offer insights into the dynamics of Inuit-qallunaat interactions across the broader Web.

Taken together this research offers excellent illustrations of the a few of the ways Inuit have adapted digital technologies to an Arctic context, and I draw on these case studies throughout the dissertation in order to support my own findings. However, given how sparse the

research remains, it does not offer many robust theoretical frameworks that I can apply to my own work. Most importantly, this research does not develop theoretical frameworks for understanding the positive and negative dimensions of digital, epistemological politics, nor does it ever take a broad view of the public Web as a site for Inuit and qallunaat encounters. Instead, these projects tend to focus on issues well-developed within digital studies from outside of the Arctic – issues of democratic practice, empowerment, identity politics, and cultural preservation in the face of colonialism. While these are important issues, and are certainly implicated in this project, they do not take advantage of the unique insights into epistemological politics that are offered by Inuit engagements with environmental management in the Arctic. In the remainder of this chapter I explore whether digital geographies research in other areas of the world offers better theoretical tools for understanding these knowledge politics.

### *3.3 Democratic Digital Encounters*

Digital researchers have focused on the democratic potential of digital technologies more than on any other issue. This section defines democratic digital encounters as the digitally-enabled extensions of our ability to produce a shared world following particular, democratic rules. The key attributes of ICTs that enable such a form of digital politics are their accessibility, their connectivity and interactive nature, their aggregative analytical capabilities, and their customization. The accessibility of these technologies is what enables an extension of politics to new locations and subjects; their networked connectivity, interactivity, and aggregative abilities enable the production of a shared world; and their customization allows for the design of digital spaces that guide self-expression to follow particular (democratic) rule sets.

The key theoretical contribution of democratic theory is the notion of a shared world. This is an expressly normative concept, and different sets of democratic theory have sought both

to conceptualize what a shared world might look like and what societal institutions might be used to achieve it. Hannah Arendt's (1958) work offers a very general overview of how a shared world emerges out of politics. For Arendt (1958) action and speech have the unique property of going between individuals to reveal commonalities shared between those involved in the action or speech act. As a result Arendt believes that dialogue between individuals is capable of producing something that is more than, but always existing between, individual subjects (Ashenden and Owen 1999; Johnson 1991; Norris 1996; Villa 1992). While Arendt does not explicitly tie this political theory to issues of epistemology, her theorization requires the agonistic interaction of multiple perspectives on both what the world is like and what individuals believe the world *should* look like. A shared world can only emerge when individuals have communicated in a manner that allows them to reach a common understanding. This shared world view then allows participants in these political conversations to go on to act in unison to materially produce their mutually-desired society.

Digital technologies offer individuals tools to communicate with one another and to reduce varying perspectives to a single representation – both prerequisites to Arendtian notions of shared worlds. The connectivity and interactivity of technologies are obviously key factors in bringing multiple perspectives together within a single space. However, the accessibility of these technologies is also critical to ensuring that resulting shared worlds are shared by more than a few digital users. As a result, researchers have focused huge amounts of attention on how the relative accessibility of ICTs[14] expands access to spheres of democratic communication. Ideally,

14 In this and other sections I focus primarily on Web-based ICTs, since these studies are more directly related to this dissertation research. I do not spend substantial time discussing (slightly) older research on the political implications of desktop forms geospatial technologies and GIS. In this section, this most glaringly results in the omission of much discussion of public participation GIS (PPGIS) or participatory GIS (PGIS) research. Both research agendas have historically utilized geospatial technologies to attempt to democratize accesss to political decision-making processes for marginalized groups, and tend to conceptualize technology using many of the same democratic theories discussed here. For a detailed account of these forms of community-based GIS work,

ICTs allow individuals to participate more equally in political decision-making processes, and enable more inclusive and legitimate forms of democratic governance. ICTs enable this expansion of politics because they are relatively cheap, widely available, and relatively easy to use (Benkler 2006; Bimber 2007; Castells 2004). Moreover, their networked connectivity allows them to transmit information or ideas quickly and cheaply across geographically dispersed nodes (Anderson 2006; Barbasi and Bonabeau 2003; Bennett and Segerberg 2013; Buchanan 2002; Lotan et al. 2010). This allows any individual to effectively communicate their ideas to large publics, even if the are not powerful individuals from a traditional, bureaucratic perspective. Of course, material and social inequalities still produce digital divides and lags, which result in continued asymmetries of access (Crampton 2003, 2009a; Crutcher and Zook 2009; Elwood et al. 2013; Forlano 2009; Gilbert 2010; Graham and Zook 2013; Haklay 2013; Halford and Savage 2010; Hinchcliffe 1996; Howard 2010; Min 2010). Nevertheless, there are numerous examples of how digital technologies have expanded access to public services, decision-making processes, government or humanitarian aid, and knowledge production to groups that have been politically marginalized (e.g. Arsanjani et al. 2013; Crampton 2009b; Crutcher and Zook 2009; Elwood and Leszczynski 2013; Esarey 2011; Goodchild and Glennon 2010; Howard 2010; Johnson and Sieber 2012; Lievrouw 2011; Lin 2012; Livingston and Walter-Dopp 2012; Poell et al. 2014; Young and Gilmore 2014; Zhou and Moy 2007; Zook et al. 2010). The ubiquity of ICTs is thought of as a key tool for expanding democratic inclusion in governance.

The more difficult question is how digital technologies can be used to reduce these

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see Sieber (2006) and Elwood (2011). For a broader review of the history of critical GIS research see O'Sullivan (2006), Schuurman (2000), and Sheppard (1995, 2005). Otherwise, I will only reference this GIS literature when it offers a unique and important perspective on digital politics, which cannot otherwise be well-illustrated with recourse to literature on Web-based technologies. Of course, much of the critical work on geospatial technologies has now transitioned to explorations of various forms of Web mapping, which I try to highlight throughout this literature review. For early reviews of how critical GIS literature is shaping geographic research into the Web, see Elwood (2008, 2010), Elwood, Goodchild, and Sui (2012), Goodchild (2008), Sui (2011), and Leszczynski and Wilson (2013).

different perspectives to a single view that holds normative legitimacy for those involved in the process. In other words, democratic theory asks what rules must be followed in order to transform all of these different voices into a shared world. Different forms of democratic theory offer varied guidelines for this process, and each has differing implications for the types of digital practices that can produce democratic engagement. The customizability and aggregative abilities of technological systems are critical for enabling these digital practices. Web platforms can be constructed to enforce different types of rules governing the types of democratic communication and decision-making processes that they allow, thereby regulating digital politics such that it conforms to democratic norms.

Civic action groups have developed some platforms to facilitate the norms associated with deliberative forms of democracy. This model of democracy posits that shared political worlds can only be produced via engagement in (often Habermasian) forms of communicative action. Digital users must engage in debate, guided by highly rational and objective rules, in order to arrive at a mutually agreed upon (consensus-based) understanding of normative or politico-ethical truth (Bohman and Rehg 1997; Dryze 2010; Habermas 1984, 1987, 1990). Digital systems that incorporate deliberative norms often encourage high levels of discussion and debate, encourage users to be highly educated on the topics of discussion, and include rules of terms of service that minimize personal perspectives, biases, or inaccuracies. These practices and rules allow users to blend their knowledge together, through debate, in order to produce a shared vision. For example, ConsiderIt is a platform designed at the University of Washington to support deliberation amongst Washington state voters (Freelon et al. 2012; Kriplean et al. 2012). It was designed to encourage users to engage in deliberative reasoning, reflection, consideration of multiple points of view, and listening. Wikipedia offers another vision of a system designed to

produce shared visions of the world through deliberative collaboration. The site allows users to produce encyclopedia articles but guides that production through the imposition of terms of service, the cultivation of collaborative and discussion-based Community Portals and 'Talk' pages, and the celebration of "self-conscious social-norms-based dedication to objective writing" amongst users (Benkler 2006, 72). Although few of these platforms fully ascribe to the full normative requirements necessary to produce true Habermasian deliberation, they nevertheless adopt those rules that they feel is important to arriving at a valid form of consensus.

Other digital platforms focus on models of democracy that are better described within social choice theory. Like deliberative democracy, social choice theory posits that individuals can arrive at normative truths by blending their perspectives with one another. Social choice theory also believes that personal interests often stand in the way of arriving at these truths. Unlike deliberative democratic theory, though, this set of theories does not rely on objective debate to minimize personal biases and arrive at a consensus. Rather, the goal of social choice theory is to produce "the optimal compromise between given, and irreducibly opposed, private interests." (Elster 1997, 3) Rather than relying on deliberation as a method for arriving at truths, social choice theory uses Condorcet's Jury Theorem to argue that the individual opinions of members within a crowd can be mathematically aggregated to arrive at some notion of truth (Estlund 1997). Even if this compromise contradicts the personal interests of individuals, it nonetheless is viewed as a normatively legitimate shared vision of the world so long as the voting/aggregation system is designed to fairly represent all of those individuals.

Many crowdsourcing platforms rely on these aggregative models to produce community-based truths about the world. For example, star-based rating systems seek to approximate the general quality or value of products or services by aggregating the ratings of many different

users. Citizen science platforms also rely upon the mathematical synthesis of empirical observations contributed by users to produce scientific knowledge (e.g. NOAA 2012; Sparke 2012; Warf and Sui 2010; Young et al. 2013). While the mechanisms of interaction are different from the deliberative systems described above, the nevertheless rely upon a similar form of value-driven customization of digital spaces to produce a forum in which individual subjects can come together to produce a legitimately-shared vision of the world.

This democratic model of digital encounters can offer important insights into Inuit-qallunaat interactions within digital spaces. Democratic theory is quite effective at explaining the political implications of technology access for Inuit, and provides strong normative arguments for why access should be increased. It also contains tools for understanding how Website design and customizability strongly shapes the types of political behaviors and discussions that occur within digital spaces. For example, authors like Scobie and Rodgers (2013) rely on implicit democratic norms when they praise digital platforms for their ability to increase Inuit participation in environmental decision-making. Most importantly, democratic theory offers strong normative goals for the types of collaborative behaviors that sites should be designed to encourage. This is not surprising – many of the descriptions of Inuit attempts at collaboration within institutional spaces, as described in Chapter 2, are also framed in terms of democratic theory. Democratic theory allows me to understand how digital technologies enable practices of consensus and compromise between Inuit and qallunaat, a key goal of this project.

Unfortunately, this strength of democratic theory is also a key weakness of the framework for this project. Democratic theory is overly prescriptive in a normative sense, and its normative goals are deeply steeped in Western philosophies. As a result, its drive toward a shared world often presupposes a world in which all individuals share very specific Western beliefs. The *a*

*priori* normative principles built into this set of theories marginalize epistemologies and subject positions that fall outside of the Western tradition by prescribing how individuals can and should interact with one another. In doing so they preclude the entrance of these epistemologies, including IQ, into political encounters from the very beginning. This makes democratic theory a particularly poor model for understanding how one might produce interepistemolgoical engagement between Western and Inuit systems of thinking. Once again, this is clear from the analysis of Inuit institutional engagement in Chapter 2 – the integration of IQ into democratic governance frameworks, such as the Government of Nunavut's parliamentary system, has historically produced a governance system that excludes many important aspects of IQ.

Critiques of Habermasian deliberation[15] offer the clearest illustration of how foundational norms can come to bias political interaction. Habermasian concepts like democracy, deliberation, and the (singular) public sphere are not politically neutral but contain (Western, bourgeois, racialized, and gendered) values that normalize what types of political activities are possible (Calhoun 1992; Fraser 1990; Mouffe 1993; Staeheli 1996; Staeheli and Thompson 1997; Young 1990). As a result Habermasian theory pre-determines the types of politics that are possible within the public sphere (Mouffe 2005). By bracketing private identity, celebrating a unitary public sphere, and banishing private matters from public discourse, this model of democracy perpetuates a white, masculinist, and bourgeois vision of politics (Fraser 1990; Staeheli 1996; Young and Gilmore 2014). The humanistic underpinnings of these deliberative frameworks force marginalized individuals to both trade their own cultural and epistemological views for dominant

15 Similarly, a critical discussion of social contract theory would illustrate how its principles of individuality and rationality conform heavily to neoliberal visions of the world, and conflict with Inuit beliefs in consensual politics and sharing economies. The humanism underlying democratic theory, in general, also tends to reduce the world to a reservoir of resources for human use. This understanding of digital encounters does not leave much room for digital encounters between humans and non-human animals (or other types of actants), beyond debate over how humans should use these other beings.

views as a prerequisite to participating within political processes (Young 1997).

In the context of digital Inuit politics, this means that democratic theory does not offer conceptual resources for understanding how Western normative values built into digital spaces subtly preclude Inuit epistemologies. In other words, democratic theory may be able to encourage increased access to digital spaces, but it is incapable of analyzing how subtle material and discursive structures violently shape what Inuit can say and do once they get to those spaces. Individuals within subaltern positions, such as many Inuit, are forced to remain silent or to speak in the language of their colonizer (Spivak 1988, 1999). Acts of resistance carried out by the subaltern are thereby assimilated as they are translated in public spaces, and forced to define their political goals in terms of the marginalized identity imposed upon them.

As Fanon (1952) points out, the nature of this marginalization can be deeply personal and psychological—making it an issue that is banned from Habermas's vision of politics. Already, similar theoretical critiques have been offered by many postcolonial and indigenous theorists of technology, and particularly those that engage in participatory GIS (PGIS) with indigenous communities (Young and Gilmore 2017). The concern here is that the normative goals built into technological platforms and projects subtly lead indigenous peoples to adopt the epistemological and political views of the settler governments that these same people are attempting to resist (e.g. Duncan 2006; Dunn 2007; Haklay 2013; McCall and Minang 2005; Palmer 2012; Roth 2009; Sletto 2009; Wainwright 2008; Wainwright and Bryan 2009). More specific to this dissertation project, Inuit views conflict directly with Habermasian values along several dimensions—Inuit epistemological beliefs conflict with notions that one can bracket one's personal identity and that one should offer knowledge freely in public fora to strangers; Inuit political values often stress cooperation and the minimization of conflict, which contrasts with the often conflict-laden nature

of deliberation; and the holism of IQ likely conflicts with Habermasian standards of rationality (Laugrand and Oosten 2010). The combination of IQ and democratic institutions has been fraught with a range of difficulties (White 2009). There is no unique reason to believe that digital spaces would immediately solve these problems.

Some digital scholars have worked to expand the concept of digital democracy, stressing that the production of shared worlds may simply involve broader social recognition of different identities (e.g. Melucci and Avritzer 2000). This has the effect of loosening some of the problematic normative criteria discussed above to allow for a broader set of lifestyle, identity, or cultural politics. Rather than producing a shared world that is designed to drive political action, these politics emphasize that the production of connections between digital users is the political goal itself. Digital platforms are thus designed to allow users to share digital content with, and interact with, others to gain some form of social recognition (e.g. Bennett and Segerberg 2012; Loader and Mercea 2011). These processes are once again enabled by the connectivity, interactivity, and customizability of digital spaces, but they allow for a much more pluralistic shared digital space.

Unfortunately, though, even this looser vision of democracy-as-recognition presents difficulties from a postcolonial perspective. Bignall (2010) argues that theories of recognition, just like theories of democracy, still posit a teleological goal of unity that reinscribes negativity within the postcolonial subject. She argues that these theories conceptualize history as a teleological march toward unity, or as the continual drive toward negating lack of unity. Politics of recognition are driven by the need to fill the ontological void produced by this lack of unity, and they achieve this need through encounters with difference. For Bignall (2010), the connection to imperial modes of being is clear:

> Agency is connected to the 'mastery,' 'appropriation' and 'possession' of difference which is lacking. Desire is satisfied when action eliminates the negativity of lack or absence, by appropriating and possessing the object of desire. The desiring subject is compelled to become more adequate by incorporating difference, but in order to maintain a stable and coherent identity, contesting differences must simultaneously be expelled from within the boundaries of the subject. Subjective agency […] thereby involves the ambivalent and imperial gestures of repulsion and appropriation of difference. (Bignall 2010, 93-4)

The operation of negativity is evident within the claims for recognition that Inuit, and other indigenous peoples, make through digital technologies. For example, indigenous claims for increased indigenous rights are a demand for legal recognition. While these claims are designed to negate some of the inequalities of colonial legal landscapes, they may also allow settler societies to expand their own claims to universality. They do so via a double movement of negativity – they first point out a legal lack within settler societies (e.g., these societies are not universal because they do not adequately recognize indigenous rights) and then offer a legal solution that can negate that deficiency (e.g., these societies can become universally just if they establish indigenous rights that protect the group they had previously omitted). In this way the settler society's encounter with difference, in the form of indigenous peoples, allows it to overcome its own deficiencies to become a more unified society (Bignall 2010). The same process occurs in relation to epistemological exchanges between IQ and Western science – Western science is described as being deficient without IQ, but then is re-normalized as the dominant epistemological structure that IQ should be integrated within. This process reinscribes the same colonial laws and logics of universality that indigenous demands for recognition were employed to resist in the first place. It is for these reasons that postcolonial theorist Robert Young refers to negativity as an imperial epistemic device. This highlights how any theoretical construction of commonality must start from a postcolonial position, if it has any hope of

avoiding a collapse into negativity.

In sum, democratic theory offers a useful normative vision for understanding the desirability of bringing many different perspectives into dialogue with one another, as well as some critical tools for analyzing structural inequalities that might undermine this dialogue. Each of these aspects will be important for the final theoretical framework for this dissertation. However, these normative guidelines of democratic theory are often too strong or too steeped in a Western, humanistic thinking. Democratic theory also does not offer enough critical tools for understanding subtler discursive and colonial processes which undermine interepistemological encounters. By overemphasizing the production of a single, shared world, these theories describe indigenous epistemologies in terms of a negativity that must be integrated, or assimilated, into Western frameworks. As I build toward my own theory, I will construct a weaker normative vision of how digital users produce common notions of the world that enable them to construct mutual, if fleeting, political goals not based on negativity. This theory will be far more attentive to the postcolonial dynamics that inevitably structure even these contingent moments of encounter.

### *3.4 Domination-Oriented Digital Encounters*

In this section I describe domination-oriented[16] digital encounters as the digitally-enabled production of epistemological fields that are formative of new subjects. Key aspects of ICTs that enable the formation of subjects are their ubiquity, their ability to capture, store, analyze, and represent a wide range of media formats, their interactive nature, their automation, and their situatedness in pre-existing social histories and power relations. Domination-oriented

16 I am perhaps being unfair to Foucault by labeling this form of digital encounter 'domination-oriented'. He is quite insistent that technologies of power are always co-extensive with technologies of self-transformation and freedom (Ferguson 2004; Valverde 2004), and that relations of power are not equivalent to relations of domination (O'Grady 2004). Nevertheless, digital theorists most often use Foucault to outline the dangerous or disciplinary effects of digital practices. I therefore think that this name best describes the literature.

frameworks describe how these aspects of technology facilitate the hegemony of specific epistemological systems within digital spaces. Research in this area relies heavily on Foucauldian understandings of the subtle material and discursive structures that shape how individuals think and act within different spaces. This research offers a nice counterpoint to the democratic theories discussed in Section 3.3, since it focuses on the negative dimensions of encounters across difference within digital spaces. However, this negative focus offers few theoretical tools for understanding the possibility of positive digital encounters.

Foucauldian theory strongly emphasizes the role of epistemological systems in producing relations of domination within societies (Foucault 1965, 1994a, 1994b, 1995). Foucault's historical analyses reveal power to be a productive, discursive, and relational force that shapes individual identities through the production and invocation of knowledge claims. He identified several fundamental shifts in governance throughout history, and demonstrated how each of these shifts was co-productive with a shift in epistemology. For example, in the Middle Ages Foucault identified a shift from sovereign and territorial law (aimed at controlling territories) to pastoral (religious) power (Hekman 2004). The Christian Church facilitated this shift through the production of religious truths that individuals needed to adopt to achieve salvation. Foucault (1991) emphasizes that this represents a shift in the concept of power from a negative force (laws that forbid certain types of actions) to a productive force (individual ethical requirements that describe how one must conduct their behavior to achieve certain goals). The epistemological delimitation of religious truths thus became a driving force in how people acted, and even "the very modes by which we affectively seize upon or release a fundamental sense of identity." (Butler 2004, 193) More recently this configuration of knowledge/power has shifted once again, such that identity is closely linked to the telling of scientific truths. Foucault describes this as a

shift from pastoral power to disciplinary power, and argues that this shift also produced the emergence of bureaucratic institutions that utilize scientific markers of normality to channel individuals in 'normal' rather than 'deviant' directions (Hekman 2004). These linkages between scientific knowledge and the technical administration of life are quite evident in Chapter 2's description of Western scientific orientations toward the Arctic environment today.

Both the ubiquity of digital technologies and their ability to capture, store, analyze, and represent data make them effective at representing truths about the world, and at generating disciplinary relations. Digital technologies have expanded the locations and scale of surveillance (Brownstein, Freifeld, and Madoff 2009; Graham and Wood 2003; Kingsbury and Jones 2009; Obermeyer 2007; Sparke 2011), automated surveillance through the use of opaque algorithms (Graham and Wood 2003), proliferated the ways in which individuals enter into surveillance-based relationships with their peers (Elwood and Leszczynski 2011), increased the granularity of what types of behaviors can be observed (Dodge and Kitchin 2007), and increased the durability of data generated through surveillance (Elwood and Mitchell 2015). These practices vastly expand the amount of data available in the world, which also expands opportunities to combine that data in ways that support the hegemony of particular epistemological systems or normative frameworks.

Digital technologies have proven to be remarkably effective at proliferating normalized representations of the world that affect how people regulate their own behavior (Graham et al. 2013). Digital discourses and practices spread logics of neoliberal governmentality (e.g. Dalton 2013; Leszczynski 2013, 2014; Meier 2011), racism (e.g. Burke and Goodman 2012; Goodman and Rowe 2014; Shaikjee and Milani 2013), and masculinity (e.g. Stephens 2013). Digital representations of the world are often subtly shaped by hidden and discriminatory social norms

built directly into digital architectures, including within terms of service arrangements (e.g. Boulton 2010), ranking and sorting algorithms (e.g. Crampton et al. 2013; Dodge and Kitchin 2005; Graham and Zook 2013; Graham et al. 2013; Niederer and van Dijck 2010), and more. The ability to control each of these aspects of technologies allows technology producers and users to increase the dominance or hegemony of a given epistemological system. However, pre-existing social and material inequalities mediate who has the ability to control these aspects of technology (Crutcher and Zook 2009; Elwood, Goodchild, and Sui 2012; Gilbert 2010; Graham and Zook 2013; Halford and Savage 2010; Hinchcliffe 1996; Min 2010). Furthermore, the visual immediacy of many digital representations of the world reinforces the likelihood that they will be "taken as definitely 'true'" (Elwood and Leszczynski 2011, 11). This increases the probability that those that control normalized digital representations of the world will also affect broader embodied interactions with and understandings of the material world. It is in this sense that digital technologies may increase the unequal dominance of certain epistemes and subject-positions in the world (Graham et al., 2013).

Foucauldian theory is particularly useful for understanding the discursive aspects of the Web that increase the hegemonic position of Western epistemologies and constrain the emergence of IQ. It offers tools for understanding how specific digital architectures, discursive practices, and terms of service work to normalize specific ways of understanding and talking about the Arctic. For instance, Pasch's (2008, 2010) work describes how the dominance of English throughout digital spaces works to normalize southern culture and marginalize the Inuktitut language and related Inuit ways of thinking[17]. Castleton (2014) similarly relies upon Foucauldian themes when analyzing the risks that Facebook poses in terms of cultural

17 Pasch also incorporates Antonio Gramsci's revisions of Foucault to better understand the culturally hegemonic nature of English, and southern culture more generally.

assimilation. These authors' uses of Foucauldian theory overcome many of the deficiencies of the democratic theories discussed in the last section, since they highlight how normative principles are subtly built into digital spaces and practices in ways that shape what epistemologies can emerge and how those epistemologies can shape politics.

Foucauldian theory is much less effective at moving beyond negative critiques of relations of power toward analyses of positive outcomes of digital encounters strategies of collective resistance, cooperation, or coalition. In other words, it does not offer resources for understanding how digital spaces might be positively constructed to allow for less asymmetrical encounters between knowledge systems. Foucault's later work offers a few techniques for individually refashioning one's own identity as a form of resistance, which he labels subjectivation or care of the self (Foucault 1988). By using these techniques individuals can reflect upon their identities, detach themselves from some of the rules that governed the production of that identity, and transform themselves through the selection of new rules. And, in fact, many current Inuit engagements with digital technologies are attempts to take better control of Inuit identity, and could be interpreted as care of the self. Examples include Christensen's (2003) description of how Inuit are using email and websites "to assert, identify and negotiate the meaning of Inuit identity, or rather identities" (91); Web platforms like IsumaTV that were designed to promote Inuit values (Evans 2008; Kunuk et al. 2011; Petersen 2012a, 2012b; Soukup 2006); and the adoption of social media to celebrate hunting, family, and other Inuit values (Athens 2014; Castleton ND, 2014; Dawson 2013; Fontaine 2016; Hawkins and Silver 2017; Scobie and Rodger 2013; Wachowich and Scobie 2010; Worden 2013).

None of these studies, though, extend their analysis to understand digital spaces that purposefully bring Inuit and qallunaat epistemological systems together to produce new forms of

environmental politics. This underscores the inability of Foucauldian theory to provide the positive, or ethical, conception of encountering and relating to others, which is crucial for my argument. Foucault's analysis is always focused on the individual (or, the population as an aggregation of individuals), and not the group. For instance, Foucault's examples of care of the self—writing letters, reviewing one's actions, and testing oneself—emphasize acting on one's own rather than on seeking out new relationships with others. Even the action of writing a letter to a friend is about the self rather than any type of intersubjective and mutually-empowering relationship (Habermas 1994a). Habermas (1994a) argues that the Foucauldian subject thereby loses all "bonds with his [sic] environment," tears "down all bridges built up of intersubjective agreement," and only sees other subjects "as the objects of nonparticipant observation." (54) This vision of a subject in "monological isolation" (Habermas 1994a, 54) from other subjects does not leave much room for Inuit emphases on the communal production of shared identities or on cooperative politics, as they are described in Chapter 2. Even if Foucault's subject is not quite as isolated as Habermas alleges, it is nevertheless true that he does not offer any criteria for ethically and productively engaging with others. Nor does he provide a framework for understanding how digital technologies might be productively designed to encourage ethical or constructive encounters. This is particularly problematic, given that Inuit emphasize the importance of consensus and collaboration in their own internal politics, and often also orient themselves toward collaboration with, rather than conflictual resistance toward, qallunaat. This means that Foucauldian theory offers a uniquely poor foundation upon which to understand the interepistemological and consensus-based politics that many Inuit are pushing toward within digital spaces.

This hints at a broader problem with Foucauldian theory – it does not offer any resources

for understanding the postcolonial context of the Arctic, and may even extend its own Western biases to understandings of Inuit politics. The use of Foucauldian theory risks revealing more about Foucault's thinking about (individualized) resistance in the West than about Inuit politics in the Arctic. Spivak (1999) [18] famously criticizes Foucault for performing a kind of ventriloquism in his work, in which he produces theorization of oppression that is designed to, abstractly and neutrally, represent all oppressed subjects. In reality this construction of oppression is deeply situated within Western histories of the prisoner and the worker (among others) that do not easily translate to other contexts. Foucault does not "seem aware that the intellectual within globalizing capital, brandishing concrete experiences, can help consolidate the international division of labor by making one model of 'concrete experience' *the* model." (Spivak 1999, 255-56) By focusing his analysis exclusively within industrialized, Western contexts, Foucault inadvertently normalizes the settler as the oppressed subject, and continues the Western tradition of invisibilizing indigenous oppression (Gregory 2004; Parry 1992).

This leads Foucauldian theorists to propose political tactics of resistance that are often inaccessible to indigenous peoples. For example, Focuault's work on care of the self requires an "elaboration of self that enables an individual to fashion himself [sic] into a subject of ethical conduct" (Foucault 1990, 251). This presupposes a subject, at the very least, that is capable of (1) forming their own beliefs about ethical conduct and (2) knowing how to re-produce their own selves in line with those beliefs. Colonial processes constantly deny indigenous peoples the agency to accomplish those tasks – they erode the cultural and epistemological resources that indigenous peoples might use to form their own beliefs about self, and they further deny indigenous peoples access to the material resources that they might use to act out notions of self. Furthermore, this focus on *self*-transformation runs counter to the communal politics, as

18 And Deleuze—a criticism which will be directly addressed later in this chapter

described above. In speaking for the oppressed subject in these ways, Foucault's theory risks obscuring and translating Inuit political demands such that they fit with his Western notions of political resistance. This misrecognition of Inuit demands not only shuts down political possibilities, but it risks extending subtle forms of epistemic violence into my analysis. Fanon (1952) describes how social misrecognition has led to deep psychological scarring within the postcolonial context of Haiti. The black Haitian subject is prevented from being recognized, or even from recognizing herself, as a self-conscious being capable of freedom because her skin color has already pre-determined her ontological status as Other. Over time this process of recognition perverts the black subject's desire to be recognized – she becomes ashamed of herself because she buys into the myth that her blackness is her identity. She believes that fighting back only provides evidence of her inferiority, and so instead tries to be more white, "to be more like the master." (Fanon 1952, 195) By misrecognizing Inuit resistance as taking a Western and individualistic form, Foucauldian theory further marginalizes these Inuit forms of resistance in a parallel fashion.

These colonial processes are already evident in the institutional politics described in Chapter 2 – Inuit calls for better representation have often led to increased access to Western democratic forms of governance rather than to the types of IQ-based governance for which many Inuit have called. Foucauldian theory does not offer tools for understanding how these IQ-based forms of governance might be enacted through communal political action. Similarly, Foucauldian frameworks of neoliberal governmentality risk missing the heterogeneous relationships that Inuit have with capitalism and development (Heininen and Southcott 2010). While some scholars have engaged in postcolonial and indigenous re-workings of Foucault (e.g. Tully 2012), researchers have not adopted these frameworks to understand digital politics.

Domination-oriented[19] scholarship into digital geographies, like the democratic theories of the last section, only offer a partial set of tools for understanding Inuit-qallunaat encounters. As I develop my own theory of digital politics, I will remain attentive to the many lessons that Foucauldian theory offers in terms of how subtle discursive structures, often present within democratic spaces, reproduce power disparities. However, Foucauldian theory sacrifices the primary benefit of democratic theory – it does not provide even a weak normative framework for understanding how different groups might come together to co-produce ideas or political action. Foucauldian theories also remain inadequate for theorizing within postcolonial settings, without significant revisions. My theoretical framework explores how to construct a weak but positive notion of collaboration across difference, while nonetheless still being able to interrogate that notion for continuing discursive, epistemological, and colonial violence.

*3.5 Resistance-Oriented Digital Encounters*

This section defines resistance-oriented digital encounters as the digitally-mediated process of reconfiguring dominant discourses to correspond with one's own lived realities. As will be described below, this type of resistance is not purely oppositional—it performs resistance by seeking the support of others and reconfiguring social relationships. These forms of digital resistance are enabled by the connectivity, interactivity, and customizability of ICTs, although

19 As noted earlier, Foucault does differentiate between relations of power and relations of domination (O'Grady 2004). Deleuze offers a similar distinction between micro- or molecular power and macro- or molar power, and it is from this distinction that I will later build a normative ethics of encounter (Bignall 2010). Although I ultimately choose to use Deleuze for this project, I think that a similar form of ethics could be produced out of Foucault's work. Molecular relations of power, for Foucault, always exist, but are unstable, flexible, and operate on a local scale. In contrasts, molar forms of domination are composed of sedimented and stable patterns of relations which are much more difficult to change or reverse. Sovereign power and law are terminal forms that such molar power relations might take (Bignall 2010). Foucault recognizes that all action will produce new micropolitical relations of power, but individuals can nonetheless engage in an ethics which resists a molar sedimentation of power. Through such critically reflective action individuals are able transform institutions such that "they operate with a minimum effect of domination upon the subject, or a maximum degree of subjective freedom." (Bignall 2010, 142) If one wanted, one could supplement this analysis of Foucauldian domination with interest-driven/ideological-based theories of hegemony, such as those developed out of Antonio Gramsci's influential work (Laclau and Mouffe 2001; Mitchell 2004; Sparke 2004; Stoddart 2007). Or, as I do at the end of this chapter, reconceptualize domination along Deleuzian lines in terms of stratification and striation (Bignall 2010).

they are often also necessitated by the situatedness of the digital in pre-existing social histories and power relations. This framework of digital politics is strongly driven by feminist theory. I find that these theories maintain some of democratic theory's strengths of conceptualizing some notion of shared worlds, while also offering some of Foucauldian theory's critical capabilities for identifying subtle forms of discursive violence. However, I also find that they remain somewhat underutilized within digital geographies research. As a result, they do not yet offer robust tools for understanding digital politics across a wide range of social contexts, and, in particular, remain undeveloped for use within postcolonial contexts.

De Lauretis (1986) argues that the "relation of experience to discourse […] is what is at issue in the definition of feminism" (5). Thus, while feminist theory has a long history of working across many different theoretical traditions, much of this work circles back to questions of (1) how discourses of unity or universality can work to marginalize particular epistemologies and subject-positions and (2) how these discourses can be reconfigured to recognize difference (Bryson 2003; Mohanty 1995). Within geography, feminist engagements with technology have the strongest roots in critical GIS literature. This literature started with an examination of how scientific discourses and practices of GIS have reinforced masculinist epistemologies (McLafferty 2005; Pavlovskaya 2006). In opposition to this, feminist geographers sought to constructively reconfigure GIS to highlight the situated nature of knowledge and to be more inclusive of marginalized epistemologies. This resulted in work that incorporated qualitative data and methods (e.g. Cope and Elwood 2009; Elwood 2009b; Jung and Elwood 2010; Knigge and Cope 2006), emotion (e.g. Crampton 2009a; Kwan 2002, 2007; Young and Gilmore 2013), and indigenous and cross-cultural knowledge (e.g. Ahlqvist 2004; Chrisman 2005; Hirt 2012; Palmer 2012; Pyne and Taylor 2012; Reyes and Martinez 2005; Sieber 2004) into GIS platforms.

This research reveals how dominant epistemologies built into technologies can be problematized to make room for other epistemologies. They do not, however, offer as many tools for understanding how these epistemologies might be placed in productive conversation with one another (Young and Gilmore 2017).

Feminist concerns have since been extended to an examination of ICTs more generally, although feminist digital geographies work remains underreprestend within the discipline when compared to the democratic and domination-oriented literature discussed above. This research has identified how digital practices marginalize certain views and subjectivities, and has also developed digital strategies to reconfigure dominant hierarchies. Elwood (2008) argues that feminist insights provide scholars with strategies for exploring how digital representations of people and places become "central loci or mechanisms of inclusion and exclusion, empowerment and disempowerment" that are directly linked to "ensuing exclusion of […] needs and priorities from policy and decision making processes" (178). A specific example of this exclusion is identified in Stephens' (2013) work on OpenStreetMap, Google MapMaker, and Wikipedia. Her survey of these technologies revealed a gender gap in participants not only at a general level, but also within key gatekeeping positions within the organizations that run the various sites. This gap produces a representational world in which men are largely able to speak for women (Stephens 2013). Digital platforms use highly masculinist epistemologies to craft the data structures and algorithms that transform increasingly detailed data about individuals into public representations (Leszczynski and Elwood 2015). Similar closures in the politics of knowledge production have been identified across a range of other digital platforms (e.g. Burns 2014; Chun 2005).

Feminist scholars have identified digital strategies for opposing these technological inequalities, and for combating social inequality more generally. On one level scholars have

explored using digital relationships with others to reflect upon and improve one's own personal position. Many of these strategies rely upon Harawayan notions of cyborg subjectivities and constructive power (Haraway 1991; Pritsch 2004). Like Foucault, Haraway recognizes that power is multiple and productive in its ability to shape epistemological hierarchies. In contrast to Foucault, Haraway provides a much stronger and more positive normative aesthetics of resistance (Pritsch 2004). She argues that empowerment lies in the ability to form diverse relationships with others and to use those relationships to transform, or construct, oneself to escape normalization[20]. This political practice relies on precisely the types of connectivity and interactivity allowed by ICTs. In the more specific context of geographic research Wilson (2009, 2011, 2012) argues that cyborg practices, including witnessing, situating, acquiring, and diffracting, allow digital users to expose the messiness of knowledge production in order to open space for new modes of knowing. Wilson has applied this theoretical lens to an examination of location-based services, while other scholars have performed similar studies of bots and other non-human actors (e.g. Bittner et al. 2013; Crampton et al. 2013). This research uses Haraway to "foreground the messy and risky spaces of technoscientific practice," (Wilson 2012, 512) and presents opportunities to move away from the hierarchical relationships that tidier representations hide and normalize. A Harawayan framework therefore offers tools for understanding how individual Inuit blend knowledge claims from both IQ and Western science to achieve self-transformation. It is less clear how these theories might help to analyze any form of collectively-oriented politics.

20 Haraway's description of power works quite well in the context of the construction of digital networks. Just as Haraway's cyborg empowers itself by selectively constructing an identity through its relations with others, so connective networks are thought to be powerful in their ability to forge strategic relationships between different nodes in a network. The cyborg, in this case, is the network itself rather than a (human) individual. In this view, the role of a 'switcher,' capable of connecting different networks together, can be seen as a critical node of power (Agarwhal et al. 2012). Similarly, the technical attributes of technologies which allow the construction of network organization, such as Bennet et al.'s (2013) mechanisms of production, curation, and dynamic integration, become critical tools in the exercise of constructive power.

Other feminist scholars offer better examples of how feminist strategies have been used to construct political alliances that extend beyond individual subjects toward collective action. Stephens (2013) argues that women can overcome some of the masculinist biases of the geoweb if they come together and make a concerted effort to map the places they know and generally expand their participation within crowdsourcing applications. Elwood and Mitchell (2013) find that geospatial applications can help to bridge the gap between the construction of individual subjectivities and engagement in collective political action. Their project shows how individuals use digital technologies to build interpretive frames that mobilize others toward collective goals. The customizability of digital platforms allows individuals to construct these goals broadly, and their interactivity allows for personal adjustments of the frames by new users. This ensures that these platforms are capable of building unity across difference without destroying or marginalizing that difference. Although not expressly drawing on feminist thinking, Bennett and Segerberg (2012) have found these same types of frames across various instances of social media, producing connective action as exemplified by movements like the Arab Spring and Occupy Wall Street. These forms of flexible and connective action resonate strongly with a wide range of feminist conceptualizations of counter-politics, strategic alliances, coalitional resistance, and counter-publics (e.g. Benhabib 1996; Coles 1996; Mansbridge 1996; Mouffe 2005; Sparke 2008; Staeheli 1996; Staeheli and Thompson 1997). Notably, though, none of this feminist work on digital geographies has occurred within postcolonial or indigenous contexts, making it difficult to directly assess its applicability to this project.

Feminist theory offers important insights into how digital structures and practices produce epistemological hierarchies and how groups of users might come together to resist those hierarchies. In this sense feminist theory blends some of the best aspects of both democratic and

Foucauldian theory, in that it offers tools for both negative critique and positive interventions in digital practice. Feminist descriptions of collective resistance offer me examples of how digital platforms are used to encourage strategic yet flexible alliances between different users. Applied to the Arctic context, these theories effectively describe the tactics that Inuit have used flexible discursive frames, such as legal rights and notions of sustainability, to work with southerners in pursuit of goals such as the Nunavut Land Claims Agreement and co-management projects. Feminist theory contains a rich variety of approaches to constructing common identities, constructing political bonds with others, and even engaging others across difference. The difficulty, noted above, is that these collective feminist strategies have not yet been very well developed within the context of digital geographies research, meaning that there aren't sufficient resources for understanding, for example, what digital coalitional politics or counter-hegemonies really look like in practice.

Most problematically for me, research on digital geographies has not adopted indigenous or postcolonial forms of feminism. Instead, it has primarily drawn from feminist thinking that has emerged out of Western and Global North contexts. It is difficult to determine whether the types of strategic alliances discussed by Elwood and Mitchell (2013) or the organizing advocated by Stephens (2013) to increase digital participation by women would apply well to the unique dynamics of Inuit-qallunaat encounters. Many descriptions of feminist organizing presuppose some pre-existing similarities between the groups that are coming together for political reasons. Postcolonial feminists have criticized Western feminists for their tendency to posit women as a universal group that faces inherently similar forms of oppression (Mohanty 1984; Tyagi 2014). This leads these feminists to inadvertently whitewash their analyses of domination and resistance by overlooking the differences in race, class, and historical context that differentiate colonized

women[21] from others. This can lead to mis-representation of colonized women by their Western feminist counterparts, and to new forms of oppression (Tyagi 2014). Ultimately, the Western feminist theory historically used within digital geographies research may offer a desirable normative vision of collective resistance, but nonetheless lack the tools for understanding the dynamics of how collectivities can be produced across colonial divisions. Postsocialist feminists Tlostanova et al. (2016) argue that mainstream Western feminism has yet to offer many "effective modes of egalitarian or honest transcultural dialogue" (Tlostanova et al. 2016, 212) between the Global North and South, despite claims to the contrary. They say:

> Global and transnational forms of feminism have declared their faithfulness to dialogue, but have offered limited tools to bridge theorising and oppositional praxis (Alexander and Mohanty, 1997; Waller and Marcos, 2005; Ferree and Tripp, 2006). This impasse entails confronting the limits of the 'field imaginary' of feminist studies, 'the affective force that constitutes the psychic life of the field' (Wiegman, 2012: 14) where Western feminism tends to be seen as the hegemonic centre against which the hoped-for non-Western feminism is to be framed. (Tlostanova et al. 2016, 213)

A feminist theory of digital encounters, if it is rooted entirely in these Western understandings of politics, may risk leading me to only understand Inuit empowerment if it looks like Harawayan hybridity[22] or a Mouffian form of counter-hegemony. Nevertheless, these feminist theories offer

21 Gender is particularly complex within the Inuit context. On the one hand, Inuit communities face a high and growing rate of domestic violence that disproportionately affects women and children (Billson 2006). These are similar structural conditions to those faced by women in many other societies. However, these problems are linked to the effects of the colonial history of the Arctic, including residential schooling and the introduction of drugs and alcohol. As a result they require special analysis. Furthermore, Inuit traditionally understand gender differently than many Western societies—individuals often have both a biological gender and a gender based on the identity they inherent through their name; there exists a traditional, third gender associated with shamanistic power; and Inuktitut does not use gendered pronouns, among other differences (d'Anglure 2005; Laugrand and Oosten 2010).

22 In some ways Haraway's thinking is quite attractive for this project. However, I think that there are important reasons to prefer the Deleuzian and postcolonial thinking of Bignall (2010). First, some postcolonial scholars have criticized Haraway for reproducing some of the racial and colonial binaries that she claims to transcend with the figure of the cyborg. The most common criticism relates to the ways that Haraway sets up a de-historicized woman of color as a foundational trope for the development of oppositional consciousness (Puar 2011; Sakhkhane 2012). Schueller (2009) argues that this move leads Haraway to reduce the desires of women of color to be one exclusively of desire for resistance to hegemonic power. For Scheuller (2009) this "not only

the strongest tools yet for understanding the dynamics of collective politics as both a positive encounter and a site of new forms of epistemological violence. In the next section I argue that the problems with feminist theory can be overcome through stronger incorporation of feminist and indigenous thinking developed specifically within postcolonial contexts – a step that neither digital geography researchers nor research on Inuit engagements with technology have not widely adopted. I argue that Simone Bignall's (2010) postcolonial feminism, and particularly her understanding of mediating concepts and common notions, provides a rigorous framework for understanding the possibility of collective politics as they emerge from Inuit-qallunaat encounters. Bignall's (2010) approach innovatively combines Deleuzian theory, which offers many of the same advantages of Foucauldian theory for understanding discursive politics, with postcolonial feminism, which offers tools for positively constructing an ethics of encounter within postcolonial contexts. As a result she offers an ideal framework for understanding how collective politics function as sites of violence and hierarchy, but also of political possibility and mutual, positive transformation.

*3.6 Positive Encounters: A Minor Framework of Digitality*

The previous sections outline the major conceptualizations of digital encounters that geographers are currently using. Each offers benefits for understanding digital encounters between Inuit and qallunaat, but ultimately fails to provide a complete framework for

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reifies the very binaries of center and margin, colonizer and colonized, that Haraway as poststcucturalist wishes to blur, but also homogenizes, through a colonial imperative, the margin itself, a tactic strongly critiqued by Chandra Mohanty." (58) Second, while Haraway and Deleuze share many similarities in both their posthumanism and their conceptualizations of animality (Leston 2015), they nevertheless disagree over what types of relationships should form the basis and entry point into environmental ethics. In particular, Deleuze is quite skeptical of utilizing companion species as an entry into human/non-human ethics, while Haraway celebrates the role of these companion species as the basis for compassion toward the natural world (Leston 2015; Williams 2009). As Williams (2009) points out, this vision of environmental ethics as compassion underlies many Western forms of animal rights activism—and is certainly a hallmark of many of the anti-sealing campaigns that the Inuit have historically, and emphatically, rejected. This factor, in particular, is troublesome when thinking about analyzing Inuit relationships to the environment through a Harawayan lens.

understanding the postcolonial context of these encounters. As I outlined at the outset of this chapter, an ideal framework must be able to examine the unique politics of compromise and consensus that Inuit have consciously adopted, in such a way that it can outline both the negative *and* positive outcomes of these politics. In other words, this framework must effectively negotiate the aporetic nature of Inuit politics without succumbing to a desire to emphasize only the marginalizing or empowering aspects of the resulting tensions. From democratic theories of the digital such a framework must adopt a positive notion of what collaborative politics might look like, while nonetheless being much more attentive to the epistemological violence inevitably produced by such politics. Theories of domination provide tools with which to analyze these forms of epistemological violence, but their Foucauldian grounding lacks a sufficient conceptualization of positive or collective politics. Resistance-oriented theories offer an appealing compromise between some of the most important aspects of each of these sets of theories, yet remain relatively undeveloped within digital geographies research and, like the other frameworks, include few insights developed from within postcolonial contexts.

In this section I overcome these deficiencies by developing a new framework of digital encounter that is based on the work of postcolonial feminist Simone Bignall (2010). To develop a positive conception of postcolonial subjectivity for her work with aboriginal peoples in Australia, Bignall (2010) blends postcolonial theory with Deleuzian theory. The Deleuzian aspects of her project ensure that her theorizations contain many of the same sensitivities to epistemological violence as are found within Foucauldian theory, but also provides a rich set of tools for understanding encounters as potentially positive sites for growth and transformation. Meanwhile, the postcolonial aspects of the work ensure that Bignall (2010) remains attentive to the unique dangers of thinking with (white, male) thinkers like Deleuze. They also allow her to

constantly negotiate and highlight the messy contradictions and tensions intrinsic to indigenous contexts. This makes Bignall's (2010) work well-suited for my purposes.

Bignall (2010) project is one of conceptualizing what postcolonial agency might look like, a project that she believes has long been hindered by the operation of negativity within Western philosophy. As I described in section 3.3.1, Bignall argues that postcolonial agency has long been structured around notions of absence. Indigenous activism, for instance, is framed as pointing out current legal or political deficiencies that can then be overcome through adjustments to that society. This has two effects. First, it defines indigenous politics in highly negative terms - they are always placed in opposition to settler societies and function to highlight lack within those societies. Second, it normalizes the long-term legitimacy of settler societies, since it represents them as capable of teleological growth that increasingly incorporates difference to achieve an ideal and common world for all its citizens.

Bignall (2010) argues that this emphasis on negativity and negation within the Western tradition was first introduced by Hegel's dialectical account of mutual recognition. Hegel viewed the process of mutual recognition as an attempt to overcome the subject's original enslavement to desire, which was experienced as lack or negativity. He argued that it is only the negation of this desire that allows an individual to gain self-consciousness and unity. Applied to the level of societies, this process parallels the narrative of teleological process used to describe settler societies above. Due to his criticisms of Hegel's dialectics, Bignall (2010) turns to Deleuze to see if he might offer an alternative way to think about postcolonial subjectivation as a positive process of encounter rather than a negative process of overcoming lack. Deleuze criticizes Hegelian dialectics precisely because it is framed as a process of realization, whereby being seeks to realize some final, unified, and 'real' state through engagements with and mastery over

difference.[23] He views the process of dialectics as a reduction or elimination of difference, since dialectical processes seek to neatly combine opposing forms of being into a unified synthesis. Put another way, Hegelian dialectics posit a transcendental realm that is gradually realized out of different possibilities presented by existence. "In this way, dialectical realisation moves from possibility to reality, multiplicity to unity, or difference to identity." (Bignall 2010, 107) Deleuze instead offers an ontological view of the world that celebrates movements toward multiplicity and innovation.

This view hinges on the operation of three different planes of existence—the virtual, the actual, and the intensive (Braun 2006; Protevi 2013; Srineck 2007). The virtual plane is the closest to a plane of unity, since it is composed of an undifferentiated mass of material flows and intensities (Protevi 2013). It is out of this chaotic milieu that the multiplicity of the actual arises, in the form of material objects or stable systems with particular identities. The virtual and the actual are always interacting with one another, as the virtual is always threatening to actualize new forms of being. As Clark (2011) puts it, "[c]onceived of as a limitless reservoir of promise of which any existing being is a localized incarnation, the virtual exerts a constant pressure on the actual to veer off-course into something other than it is." (42-43) In between the virtual and the actual is an intermediate plane, labeled the intensive. It is within the intensive that the virtual flows are assembled and different/ciated to produce the actual. It is important to remember that all of these planes are equally real at all times—any particular identity or body is simultaneously actual and also a virtual set of flows that can transform (through an intensive process of individuation) into other potential identities or bodies. In this way one can think of the virtual as the *structure* of possible interactions of flows of energy and matter, the intensive as the *process* of interaction that produces events or objects out of this structure, and the actual as the resulting

23 See Braun (2006) for an attempt to make Deleuzian theory and dialectical theory compatible.

*event*, *body*, or *object* that emerges. Critically, during this process of actualization "difference is not limited or eliminated but created, affirmed and multiplied; in becoming actual, being has an unlimited potential to trace divergent paths of development, individuating multiple, novel and diverse forms." (Bignall 2010, 106)

Thus far this account of Deleuzian philosophy has placed great emphasis on the intrinsically unstable nature of the actual. However, in order to understand processes of hegemony and colonial domination, we must also look to processes that arrest or control this flux of the world. One actualized, the emergence of a configuration, or topology, of relationships between different flows can obtain a measure of permanence over time, to the extent that they come to exert "a conservative force on differentiation by 'organising' or 'territorialising' the immanent tendencies through which life proceeds" (Lorimer 2010, 41; see also Braun 2006; Marcussen 2008). In other words these configurations can become effective at obscuring the potential other becomings held within their own virtuality, thereby working to absorb new events into their own ordered structure. There are several different levels of possible sedimentation. First, strata "are the systems of organisation or classification that attract and trap disorganized matter," (Bignall 2010, 157) Strata can be thought of as belts of order that define particular aspects of the world. Deleuze and Guattari (1987) list physicochemical, organic, and anthropomorphic systems as three examples of strata. These strata are arranged in relation to one another in neighborhoods that Deleuze and Guattari refer to as milieu. Milieu, which are quite similar to Foucault's notion of epistemes, define the relationships between different strata by defining the rules by which elements in one stratum can pass into another stratum. Finally, it is this passage of materials and intensities between strata that produces concrete assemblages, or bodies. For Deleuze, "the constitution of selves and societies takes place in terms of a

contextualizing milieu comprised of multiple and co-existing strata defining overlapping discourses, institutions, and practices." (Bignall 2010, 198)

Taking a step back, human identity (including notions of epistemology and ontology) can be thought of as assemblages. In the context of my project, Inuit and qallunaat epistemologies are actualized assemblages whose relationship has become striated over time to produce a patterned relationship that is colonial (or hierarchical) in nature. Each identity is ensnared in a range of institutions, discourses, and practices that work to guarantee the continued stability of this colonial relationship and the resulting colonial identity of the Inuit. Just as Foucauldian theory offers tools to analyze the epistemological dynamics of relations of domination, so this Deleuzian framework explains how the patterned striation of configurations of material and discursive flows produce hierarchies. Deleuze refers to relations of domination as an expression of molar power, as opposed to molecular forms of power. Molar forms of domination are composed of sedimented and stable patterns of relations that are quite difficult to change or reverse. "The continuing historical dominance of a particular form of identification with certain culturally significant strata that collectively defines an attitude or 'ethos of belonging' is best interpreted as an exercise of social power or hegemonic normalization upon the subject." (Bignall 2010, 198) Bignall describes sovereign power and law as terminal forms that molar power relations might take, and I would add the Western scientific regime described in Chapter 2 as another manifestation.

Fortunately, and precisely because they are actualized at the points of intersection between strata, assemblages always contain within themselves some instability. "[P]oints of disjunction in one's own identity, where one occupies multiple classifications and meanings simultaneously and where the occupation of one stratum alters the position assigned by another,

signal points where the constituting discourses are unstable." (Bignall 2010, 162) Subjectivity is the ability to critically examine one's own composition, to identify points of disjunction, to use them to deterritorialize one's identity, and to actualize a new identity. The process of transformation is not an easy one, particularly given the heavily striated nature of colonial relationships. There are, however, techniques that can be used to increase the possibility of such transformations for all actors involved in a colonial relationship. In particular, encounters with other assemblages produce new points of disjuncture for a body, which may provide that body with new perspectives, affects, and materials with which to effect its own transformation:

> [O]nly by experimentally entering into actual compositions with other bodies are we able to develop adequate understanding about the complex forms of compatibility and incompatibility that define our relations with the elements comprising our social existence, which in turn enable us to become active, seek out alternative ways of associating (Bignall 2010, 169)

However, these encounters do not always lead to productive transformation. Bignall (2010) acknowledges that colonial encounters are often defined by the diminishment of indigenous bodies, such that those bodies are wholly destroyed rather than transformed. Furthermore, these encounters reify the molar power of colonial bodies instead of transforming them, since they lead to the unilateral expression of colonial desires rather than the critical examination of them. Bignall (2010) argues that these encounters must be governed by normative criteria to ensure that they are sites of positive ethics and productive transformation rather than of domination. These normative criteria provide my project with the positive theorization of encounter and collective politics that I had sought within both democratic and resistance-oriented theorizations of the digital. In this case, however, they are deeply contextualized within a postcolonial context.

Bignall (2010) grounds this normative dimension to postcolonial encounters within the Deleuzoguattarian concept of becoming-minor. Becoming-minor is a process of continuous

deterritorialization, or a practice of adopting positions that fall outside of and constantly disrupt dominant social striations. From a position of becoming-minor, subjects do not use encounters as a space to expand own control over others, or to further entrench one's pre-existing identity in the world. Instead, encounters should be viewed as opportunities to interact with other bodies, learn from them, and use resulting knowledge and resources to find disjunctures in one's own identity. Taking a step back, these encounters can help individuals to positively transform the broader strata, or epistemological fields, in which they are positioned. This transformation is only possible through interactions with subjectivities and epistemologies different from one's own, and it does not benefit from the hierarchies or modes of domination and marginalization that are intrinsic to colonial encounters. In this sense, Bignall's description of becoming-minor closely mirror's Spivak's (1999) argument that colonial subjects need to unlearn their privilege as a form of loss. She describes how privilege, and especially those privileges produced through colonial histories, represents a "closing down of creative possibility, a loss of other options, other knowledge," as well as a foreclosure of any possibility of ethical relations to the Other (Landry and MacLean 1996, 4).

Both becoming-minor and unlearning privilege are processes by which colonial subjects can choose to reject the hierarchical structures that prevent them from hearing and learning from the subaltern. Bignall (2010) describes the process of *listening* respect as an important tactic for rejecting colonial hierarchies and engaging in transformative encounters. Listening respect is a concept borrowed from the work of James Tully, who describes it as an attitude that requires a "world reversal, from a habitual imperial stance, where one's own customary forms of reflection set the terms for the discussion, to a genuinely intercultural popular sovereignty where each listens to the voices of the others in their own terms." (Tully 1995, 24 qtd. In Bignall 2010, 204)

This technique seeks to overcome the impossibility of subaltern speech, and instead create a space in which bodies from very different perspectives can come together and learn from one another. Ideally, this "results in a deterritorialisation of both self and the other, as relational bodies experiment with new combinations of interaction" (Bignall 2010, 205). Within the context of this project, this process offers an opportunity for Inuit and qallunaat to use their encounters to reject the dominant epistemological and political strata that currently invisibilize IQ and define international policy toward the Arctic. It also presents an opportunity to then produce new modes of knowing and acting toward a changing Arctic environment, as called for by many of the thinkers described in Chapter 2. Ideally, such a process would help Inuit escape their current subaltern position within discussions of environmental policy. As Landry and MacLean (1996) explain:

> [W]hen she [Spivak] claims that the subaltern 'cannot speak,' she means that the subaltern as such cannot be heard by the privileged of either the First or Third Worlds. If the subaltern were able to make herself heard […] her status as a subaltern would be changed utterly; she would cease to be subaltern. And that is the goal of the ethical relation Spivak is seeking and calling for – that the subaltern, the most oppressed and invisible constituencies, as such might cease to exist. (6)

To accomplish all of this, qallunaat must "work hard at gaining some knowledge of the others who occupy those spaces most closed to our privileged view." (Landry and MacLean 1996, 4) Inuit must also be able to project their voices to spaces in which qallunaat are willing to do this work of listening. I ask whether digital technologies offer such a space for both listening and speaking, and I find Bignall's (2010) concept of mediating concepts and practices to be critical for answering this question. She argues that mediating concepts and practices play a critical role in bringing differing subjects together to pluralistically negotiate their world views across difference. These concepts and practices are topical areas of conversation or rules of

conduct that help to position different epistemological systems in relation to one another such that both systems equally access conversations. She offers native title as an example of a mediating concept that brings indigenous and Western conceptions of land together in conversation. As she argues:

> Indigenous and non-indigenous peoples have very different understandings about land ownership and use, but these different understandings might be 'combined' via the construction of mediating concepts such as native title, which occupy a space between the two systems of common and indigenous law (Pearson 1997a; see also Patton 2000: 128-31). Deleuze and Guattari name this process 'unnatural participation', by which they mean that even when bodies do not by nature agree, the formation of 'common notions' allows a mutual becoming […]. (Bignall 2010, 210)

In this sense mediating concepts are not too dissimilar from the digital interpretive frames described by Elwood and Mitchell (2013), but are grounded in goals of intercultural sharing within postcolonial contexts. Bignall goes in to identify several other mediating concepts in the post-imperialist work of James Tully, including the principles of consent, continuity, and recognition. For example, consent is a well-established concept within liberal political philosophy, which Tully defines as a "'liberty to engage in self-rule' (Tully 1995: 184); to decide the terms of one's political identifications and the circumstances in which one's freedoms might be curtailed for the common" (Bignall 2010, 218). Consent must be given in one's own voice according to one's own political criteria – meaning that consent necessarily exceeds the liberal philosophy in which it is rooted. Indigenous peoples are increasingly devising their own practices of informed consent that researchers must follow, which can either support or conflict with the consent guidelines provided to those same researchers by their home institutions (e.g. Louis 2007). This mediating concept, and attendant research practices, opens space to discuss the ethics of research within these indigenous communities.

Mediating concepts and practices are designed to facilitate the production of common notions about the world across different epistemological systems, by helping individuals from each system to better listen to individuals inhabiting the other system. She defines common notions as positive ideas of similar composition that different identity-positions feel they can share. While common notions are oriented toward building collective forms of politics, they nonetheless do not normalize notions of unity or shared worldviews as strongly as the democratic theory discussed earlier. First, they are far more contingent, fluid, and strategic than any form of shared world – they can be established for particular purposes, and engaged partially and differently by different groups. Where a shared world provides an ontological horizon that everyone must settle within, common notions only act as contact zones between a plurality of different worlds that remain epistemologically diverse outside of those zones. Bignall (2010) emphasizes that bodies should only be guided by common notions of the world to meet "bit by bit", and that they do not "describe how bodies are compatible in entirety." (210)

Second, and despite the name, common notions are not exclusively oriented around the construction of commonality. As Deleuze (1990, qtd. In Bignall 2010) explains, common notions "internally determine the mind to understand the agreement of things, as well as their differences and oppositions." (276) Bignall (2010) goes on to argue that common open space to highlight incommensurabilities between the conflicting imaginaries that different parties bring toward them. This encourages each party to listen to one another with respect and to come together when possible, but "where agreement is not possible, they should avoid coercing an unhappy fit through assimilation, elimination, or subordination." (211) In this way, common notions are not about unity, but about producing some sense of inevitable belonging together despite tensions and incommensurabilities.

This theoretical framework offers a model for understanding how an ethics of postcolonial subjectivities might be positively conceived of as emerging from encounters with difference. Returning to this project, it allows me to ask whether the Internet acts exclusively as a striated space that reproduces epistemological hierarchies, or whether the Internet might also provide space for cultivating mediating concepts and practices, listening respect, and common notions. In other words, this framework allows me to ask whether digital spaces allow Inuit and qallunaat to interact with one another ways that allow both positions to self-consciously transform themselves in positive ways.[24] Notably, Bignall (2010) remains doubtful of the ability of liberal democratic institutions to foster the production of mediating concepts and practices, and questions whether institutions such as Land Councils go too far in fixing native title within liberal hierarchies. This is consistent with the institutional analysis that I performed in Chapter 2, and confirms the need to look outside of institutional governance structures for new spaces of political encounter. Certain aspects of ICTs, including their customizability and connectivity, present opportunities for constructing mediating concepts. Other aspects, including their situatedness in preexisting social histories and power relations, leave them open to striation. This research attempts to more specifically identify aspects of digital spaces that encourage these different tendencies—for example, instances where digital tools encourage the production of common notions and other instances where they replicate majoritarian patterns of relating to the world and to others.

Of course, any attempt to bring Deleuze and postcolonial theory into conversation must inevitably confront Spivak's (1988) classic critique of Deleuze. I will end this section with some

24 For example, might qallunaat engagements with Inuit lead those qallunaat to overcome dominant conceptions of a Nature-Society divide in order to form a more experientially-based, personal, and non-exploitative relationship with the material world? Or, might these engagements produce new common notions, such as that of a shared sovereignty over global material flows like the climate, that could lead to the joyful transformation of Inuit communities and postcolonial Arctic politics?

very brief responses to Spivak's criticism. Spivak charges Deleuze of being complicit with systems of Western epistemology and hegemony. Robinson and Torney (2010) identify four specific warrants behind this claim—that Deleuze covertly inserts the Western subject into his work by making himself transparent, that he lacks a theory of ideology, that he assumes the subaltern can speak for themselves, and that he positions himself too deeply within a Western context. Ultimately, the authors conclude that Spivak takes too narrow of a view of Deleuze's work, and as a result misses some of the important ways in which Deleuze's work intersects with postcolonial goals. In particular Deleuze shares with postcolonial theory an interest in the same problem, that of "finding lines of escape from forms of capture and containment" (Bignall and Patton 2010, 9). At the very least, Bignall's (2010) work to produce a postcolonial Deleuze offers a theoretical framework that does account for or respond to Spivak's criticisms, in that it highlights conceptualizations of (Western) subjectivity, tackles issues of ideology (or, at least, domination in the form of striation) and speaking/listening, and is positioned within an indigenous context. Perhaps even more importantly, Inuit thinkers like Arnakak (2002) have also identified similarities between Inuit views of the environment and emerging forms of scientific complexity theory, which closely parallels Deleuze's thinking. Many different aspects of Inuit beliefs—the fluid interconnections between the material and spiritual realms within Inuit cosmology, the dynamic nature of IQ, and the affinities between Inuit environmental practices and adaptive management—resonate closely with Deleuze's view of the world as complex and nonlinear assemblages. The strengths of a combination of Deleuzian and postcolonial theory, as described above, make Bignall's (2010) framework promising for this study.

### *3.7 Conclusion*

In this chapter I have explored several different conceptualizations of digital encounters,

as well as the openings and closures that these conceptualizations present for framing this dissertation research. I found that these conceptual methods could have some place in analyzing Inuit-qallunaat digital encounters, depending on the analytical goals of the project. However, I found that Bignall's (2010) theoretical framework best allows me to formulate the postcolonial and epistemological questions that I explore throughout the remainder of this dissertation. Bignall's (2010) work is quite explicit in its attempts to highlight encounters across epistemological difference, yet also allows for the construction of collective action from across those differences. In contrast, other theories of digital politics either take too strong of a normative stance in their attempts to bring different epistemologies together, or they stress difference at the expense of any possibility for collective politics. Moreover, Bignall develops this theorization of encounter from within a postcolonial and, more specifically, indigenous context. This is critical for an understanding of encounters between Inuit and qallunaat. In the next chapter I turn to the development of a research methodology that allows me to use this theoretical framework to examine Inuit engagements of the Web.

## 4. Methodology

"Lodge yourself on a stratum, experiment with the opportunities it offers, find an advantageous place on it, find potential movements of deterritorialization, possible lines of flight, experience them, produce flow conjunctions here and there, try out continua of intensities segment by segment, have a small plot of new land at all times." -Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*

### *4.1 Research Questions*

The conceptual goal of this project is to explore ways in which the Internet either acts as a striated space that reproduces epistemological hierarchies or facilitates the construction of mediating concepts that allow for more transformative Inuit-qallunaat encounters. Ultimately, I am interested in whether the Internet offers digital tools that might be used by Inuit and qallunaat to break down the current hierarchical relationship between dominant southern ways of thinking and *Inuit Qaujimaningit* (IQ). More operationally the project is interested in exploring (1) digital practices and processes that support the transmission of Western science or hinder the transmission of IQ; (2) stable patterns of relationships between digital actors or concepts that minimize IQ, normalize Western science, or normalize a hierarchical relationship between the two epistemological systems; or (3) concepts or practices that allow digital users to problematize this hierarchical relationship, to discuss common notions through an equal integration of the two epistemological systems, and also to highlight incommensurable aspects of those systems. I want to identify the specific material and discursive aspects of digital spaces and digital infrastructure that facilitate these relationships, concepts, practices, and processes.

To achieve these goals I asked the following questions: (1) How is Arctic environmentalism articulated online? (2) What types of mediating concepts are produced online, which productively meld together Inuit and qallunaat views to produce common notions of the Arctic? (3) In what ways are the digital spaces of the Internet striated, such that they discourage

the production of common notions and reproduce epistemological hierarchies? (4) What specific attributes of the Internet contribute either to the production of mediating concepts or the production of striated spaces? The first question gives me a broad understanding of how Inuit and qallunaat epistemologies have emerged on the Web as actualized assemblages – I can identify how the Arctic environment has been represented online and, critically, how each epistemological system has been invoked to support those representations. The next two questions then allow me to identify the relationship between these epistemological systems as they are invoked to discuss the Arctic. I will need to identify patterns in the way that each set of knowledges is described across digital spaces, and analyze whether these patterns are hierarchical or whether they set the two epistemological systems on more equal footing. Finally, the last question allows me to examine what specific material realities and digital practices normalize these relationships between IQ and Western science.

To answer these questions the project employed a unique multi-site, mixed-method, and inductive methodology. My project needed to incorporate both digital data collected online and data resulting from fieldwork in the Arctic because I wanted to understand how combinations of material and epistemological practices all contribute to digital knowledge politics. Fieldwork in the Arctic was critical for building an understanding of the material aspects of digital engagement, while digital data provided important insights into other epistemological practices. These two different sites also reveal different types of evidence about digital knowledge hierarchies – analysis of material from Websites provides excellent insights into how these hierarchies become visible online, but only input from Inuit can provide evidence on how hierarchies render certain types of knowledge invisible. I also needed a mixed-method approach, incorporating computational analysis, critical discourse analysis, and qualitative interviews, to

answer my different questions. Computational analysis can provide a very broad understanding of how the Arctic has been represented across a very large set of data, and reveal patterns within these representations across different Websites. Given the highly inductive and broad approach of this method, though, it does not do a sufficient job of pinpointing the exact mechanisms that produce these patterns. Qualitative analysis, including critical discourse analysis and analysis of interviews, can help to tie these patterns to the mechanisms that produced them. In combination these methods do an excellent job of identifying the many different digital practices and processes that come together to produce either epistemological hierarchies or mediating concepts. The remainder of this chapter goes into a more detailed description of that methodology, including a discussion of data sources and analysis methods.

### *4.2 Overview of Study Sites, Data, and Methods*

From June 2015 to November 2016, I carried out a mixed-methods analysis of data drawn from two different sets of sites—digital sites, including Web pages and social media applications, and the physical site of Igloolik, Canada. For the digital phase of the project, I selected Web pages from fifteen different sites that all have different relationships to individuals or organizations related to the Arctic. I then analyzed the resulting data using a combination of computational and critical, qualitative methods. I performed this analysis primarily between June 2015 and June 2016, with some final steps completed between September 2016 and November 2016. This analysis was designed to characterize the current forms of Arctic environmentalism as they are being articulated online (Q1), identify mediating concepts across various sites (Q2), and identify patterns that indicate that digital spaces are being striated to conform to the Western logics that already dominate traditional political spheres (Q3). I chose both an inductive computational approach and more critical, qualitative analysis because this combination allowed me to identify broad patterns across large datasets and then drill down into the data to identify

the subtle practices that produced those patterns. However, analysis of digital data is only effective at revealing patterns within knowledge that has been represented online – it cannot identify knowledge that is being excluded or invisibilized from digital spaces, nor identify the causes of such differential exclusions. Instead, I performed field-based research in the Arctic community of Igloolik so that I could ask Inuit about forms of IQ that they have difficulty expressing within digital spaces. These interviews also revealed additional information into material and normative aspects of digital engagement that shape environmental knowledge politics (Q4). I performed these semi-structured interviews in Igloolik over the course of three months, from June 2016 to August 2016. While in Igloolik I also performed participant observation and archival research at the Arctic College's Oral History Project (OHP). Participant observation provided me with further insights into the embodied use of technology by Inuit, and elders interviews from the OHP provided me with further insights into how many IQ holders viewed the relationship between IQ and technology. I used critical discourse analysis to explore the resulting data. The primary datasets and methods are represented in greater detail in Figure 4.1, and more fully described in the following sections.

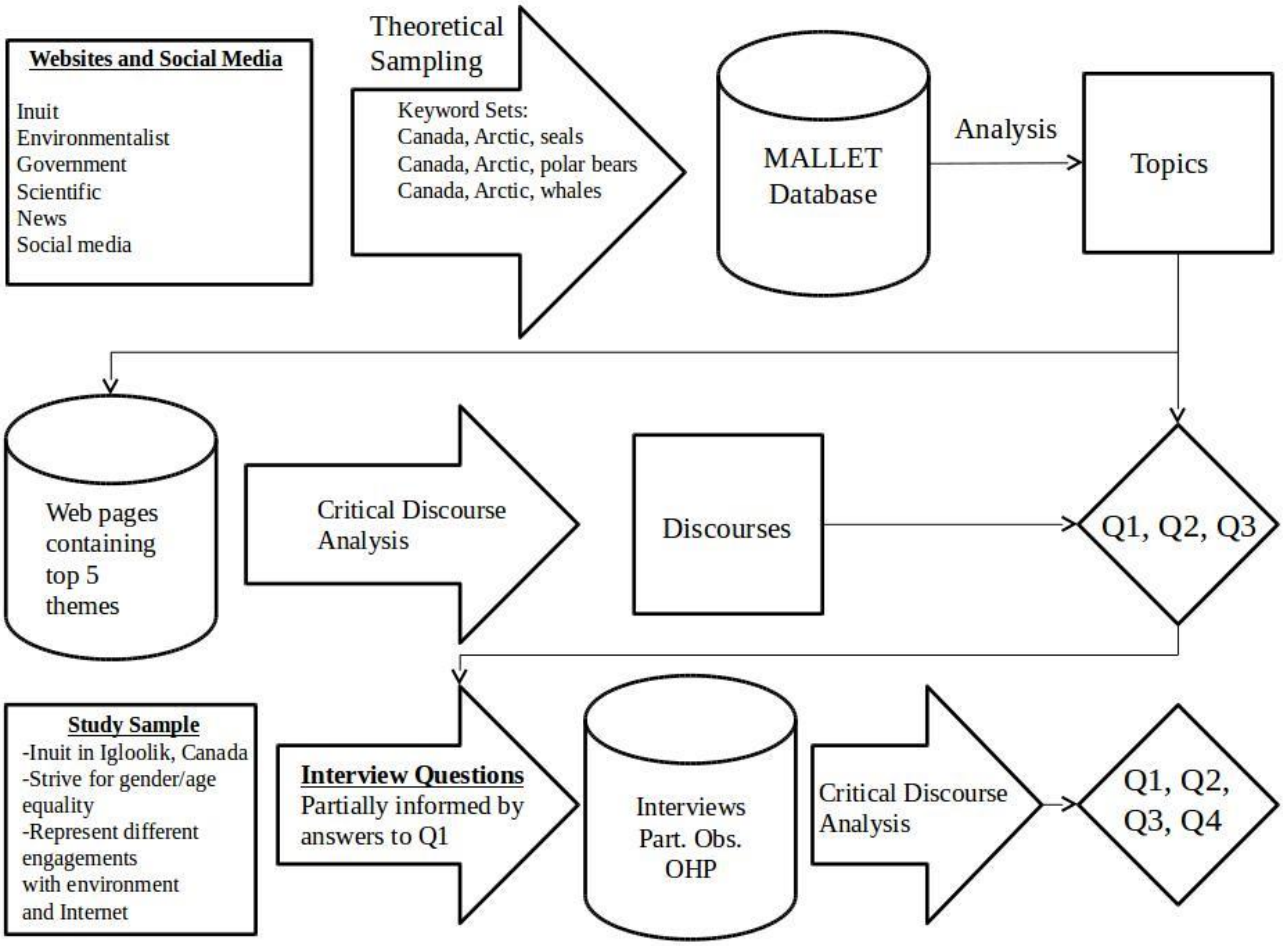


*Figure 4.1. Representation of the major datasets and methods of the project.*

My research was also facilitated by intensive study of the Inuit language and culture, as well as by multiple pilot studies. From June 2014 to June 2016 I worked with Inuktitut instructors Alexina Kublu and Mick Mallon to gain some fluency in Inuktitut, with a primary focus on the Aivilik and North Baffin dialects. I was also fortunate enough to be able to use these learning opportunities to participate in my first trip to Igloolik in the summer of 2014. During this 3-week trip I began building relationships that became instrumental in planning and carrying out my primary fieldwork. The knowledge I gained through study of Inuktitut was also critical both in building relationships in Igloolik and in interpreting the results of my research. I also used two

different pilot studies to develop the digital methodologies that I employed for this project. The first project, which examined the digital and discursive politics of polar bear management as they occur across five different websites, developed the qualitative methods that I later used for this research (Young 2016). Later, I used a second case study to develop and evaluate a computational method for analyzing the representational politics of Inuit across a large corpus of Web-based data (Young, under review). This is the methods I used for the quantitative/computational analysis portion of this dissertation project.

*4.3 Digital Data and Analysis*

For the digital portion of the research, I selected fifteen different Internet sites[25] and applications for analysis. I selected sites to represents a wide range of digital content producers, including Inuit organizations, environmentalist groups, government organizations, scientific organizations, news media companies, and social media platforms. This allowed me to better understand how different types of Internet users contribute to interepistemological politics online. First, I selected websites that focused on Inuit audiences, including the sites of Nunavut Tunngavik Incorporated (NTI), Inuit Tapiriit Kanatami (ITK), and the Inuit Circumpolar Council (ICC). I selected these organizations because they each represent Inuit at different scales. NTI represents Inuit in the territory of Nunavut, and was instrumental in the negotiations of the 1993 Nunavut Land Claims Agreement. ITK was the first pan-Canadian Inuit organization and is also currently the national Inuit organization of Canada. The ICC represents all Inuit across Canada, Russia, the United States, and Greenland. Both ITK and ICC regularly represent Inuit on the

25 Sixteen sites were originally selected for analysis. However, preliminary analysis of data collected from Twitter revealed that there was not sufficient data to produce interesting results. This Twitter data was collected through the Digital OnLine Life and You (DOLLY) project at the University of Kentucky—a special thanks to Matt Wilson and Matthew Zook for facilitating and allowing access to this project. DOLLY is an archive of all geotagged tweets starting in December 2011. Fieldwork later confirmed that Twitter is not a popular social media application in Nunavut. I shifted my method slightly, to include additional analysis of social media platforms, associated with the other 15 Websites, at the qualitative stage of my Web-based analysis. This is described later in the chapter.

national and international stage, while NTI tends to focus on more local issues. I also examined Digital Indigenous Democracy, a Web platform designed in Igloolik to provide interactive, digital media to Inuit communities. This platform was designed by the organization Kingulliit Productions[26] to deliver environmental news to Inuit communities, to promote political networking between Inuit in response to environmental issues, and to promote "Inuit values of collaboration, consensus decision-making, environmental stewardship, and resourceful adaptation" (Kunuk et al. 2011, 1). The site is also highly localized to my field site (since it was created in Igloolik), but enjoys some global viewership due to the high profile of its creators—all attributes that make it ideal for this project.

The second set of websites, which focuses on environmental audiences, includes the sites of environmentalist non-governmental organizations Greenpeace and the Sierra Club. I selected Greenpeace both because it was originally founded in Canada and because of its troubled, historical relationship with Inuit. The organization was founded in 1971 and has since spread to 40 different countries across the world. Greenpeace's stance on environmental issues has often conflicted with the view of Inuit, and is particularly maligned by Inuit due to its anti-sealing campaigns in the 1970s. Many of the Iglulingmiut with whom I spoke continue to harbor great anger for the organization, viewing this campaign as a direct attack on Inuit culture and livelihoods. The very different relationship that Greenpeace and Inuit hold with the environment make the organization a perfect one for this project. I chose the Sierra Club for the opposite reason – it is based in the United States and has not had nearly the same presence in the Canadian Arctic. This makes the organization's site optimal for examining whether and how

[26] Kingulliit Productions was originally founded as Isuma Productions, Inc. in the community of Igloolik in 1990. The original founders included Zach Kunuk, Paul Apak, Pauloosie Qulitalik, and Norman Cohn. While they have focused on the production of movies, they have also been experimenting with new types of Internet-based media, including the Digital Indigenous Democracy platform. After declaring bankruptcy in 2001, Isuma was re-branded as Kingulliit. This brief history explains why much of their website is branded with the name Isuma.

representations of the Arctic have traveled beyond organizations that are directly and materially invested in the region.

Third, government sites include those of the Government of Nunavut (GN), Environment and Climate Change Canada (ECCC; formerly Environment Canada), and the Arctic Council (AC). Once again, these organizations all operate at different scales and have different stakes in the Arctic. The Government of Nunavut is the territorial government of Nunavut, and is largely focused on service provisions for Inuit and other residents of the territory. The ECCC is a national organization that does not expressly focus on the Arctic, but does have a stake in the environmental issues unfolding in the region. And, finally, the Arctic Council is an international organization focused on a wide range of Arctic issues. As described in Chapter 2, the organization brings together both nation-states and indigenous organizations to make governance decisions. Fourth, I examined the site of the Intergovernmental Panel on Climate Change (IPCC), as a representative of a scientific organization. The IPCC is an intergovernmental body that operates within the United Nations. Its mission is to produce scientific reports to support international policy on climate change.

The fifth set of sites included those of Nunatsiaq News, the Globe and Mail, CNN, and Fox News. Both Nunatsiaq News and the Globe and Mail are Canadian news organizations. Nunatsiaq News claims to have the largest readership in Nunavut, Canada, allowing me to explore a site that targets audiences local to the Canadian Arctic. In contrast the Globe and Mail is a national news organization that is often described as being quite liberal. I paired these with two US-based news organizations, CNN and Fox News. I chose these two US organizations both because they have international audiences and because they represent different points along the political spectrum, with CNN being more liberal and Fox more conservative. Finally, data was

collected from the social media site Wikipedia. This site experiences high Web traffic and highlights interactive practices of knowledge production, making it ideal for my study.

This wide range of sites includes information produced and viewed by a wide range of users implicated in Arctic environmental politics. I also chose these sites to ensure that a wide range of scales—from local to international—and sites—from Nunavut to the United States to intergovernmental bodies—were represented. The selection allows me to examine knowledge politics and digital encounters as they emerge between a wide range of digital users, as well as to trace how Arctic discourses transform as they spread to different audiences and contexts.

Within these sites I used a theoretical sampling technique to select individual pages representative of how that site constructs representations of the Canadian Arctic environment (Wodak and Meyer 2009). Operationally I defined a 'representation of the Arctic environment' to be the presence of one of three sets of keywords on the page—either Canada, Arctic, and seal; Canada, Arctic, and polar bear; or Canada, Arctic, and whale.[27] I chose to focus on discussions of seals, polar bears, and whales because each of these animals have been the focus of very contentious epistemological and political struggles between Inuit and qallunaat. As I described in Chapter 2, Inuit are strongly opposed to current efforts to increase the regulation of polar bear hunts, and have strongly disagreed with Western scientific projections of polar bear population decline. They argue that polar bear populations are currently increasing, and that current environmental management techniques are sufficient to adapt to future declines in populations. Inuit have had many historical conflicts with policy related to both sets of animals. As mentioned above, Greenpeace is still viewed as a particularly heinous actor within Inuit communities due to their role in pushing anti-sealing legislation and bans in the trade of seals. These fights over seals

27 I deviated from this methodology for Wikipedia, since a majority of Wikipedia results discussed things name after seals, polar bears, or whales that were not relevant to the study. Instead, I analyzed the primary page, talk page, and talk archive pages for polar bears, seals, whales, and Canada.

are ongoing, with the EU passing a ban on seal products as recently as 2010. Finally, measures to ban or regulate the hunting of bowhead whales have been contentious in Nunavut. I was quite lucky to get to witness a rare bowhead whale hunt while in Igloolik, making this a particularly useful focus for the project. Iglulingmiut mentioned historical conflicts with qallunaat over the hunting of all these animals during my fieldwork, validating my focus on them.

I used Google to find these sets of keywords (either Canada, Arctic, and seal; Canada, Arctic, and polar bear; or Canada, Arctic, and whale) within each Web page. Because Google defines how many users access and experience the Web, using Google within my sampling technique allows me to produce a dataset representative of the sites that most users might encounter (Rogers 2013). This allows me to analyze the sites in which average types of digital encounters might occur. Nevertheless, Google can produce biases within my research since its PageRank algorithms can produce different results for me than for other Google users. Rogers (2013) suggests a few steps that minimize the magnitude of these biases. First, he recommends a new browser installation or new browser profile for new searches. This eliminates the possibility that saved browsing histories or cookies on my research computer might influence search results. Second, he suggests that more specific searches are less likely to contain significant biases. I utilize both suggestions in my sampling. For each website that I analyzed, I first created a new Firefox profile that for collecting web pages from that specific site. I then used a specific search strategy, using Advanced Search Google, to locate all of the pages within the site's domain that met my sampling criteria (Young 2016). For instance, the three searches completed for the Nunatsiaq News site included:

site:http://www.nunatsiaqonline.ca/ Canada Arctic seal
site:http://www.nunatsiaqonline.ca/ Canada Arctic polar bear
site:http://www.nunatsiaqonline.ca/ Canada Arctic whale

These results were sorted by relevance. Each search produced a range of results, which were returned in groups of ten pages at a time. Working ten pages at a time I right clicked each page, opened it up into a tab within Firefox, reviewed each page to ensure that it met my search criteria[28] and had not already been collected by a previous search[29], and saved a version of the page locally. This most often gave me an HTML document to analyze, but sometimes resulted in a PDF or Word Document. I also recorded the URL of each page, so that I could return to the live version of the page later, during the qualitative analysis portion of the research. I collected a total of 2793 pages—see Table 4.1 for a specific breakdown of my data. I placed documents in folders depending on the site and search terms used to locate them—for instance, there was an Arctic Council folder that contained a seal, polar bear, and whale subdirectory. I also placed documents within the appropriate subdirectory. Within each subdirectory, I numbered individual documents from 1 to n. This folder and naming convention matched the naming function that I used to record the URLs of each page, so that I knew the URL that corresponded to each document throughout my analysis process.

28 Multiple pages would use some of the terms in a manner that did not reflect my research interests. For instance, 'seal' might be in reference to some form of fastening or closure (e.g. a watertight seal). There were also references to Gold Seal tuna. Bear was sometimes used to reference something 'bearing down' on something else—for instance, discussions of the weather might have talked about a polar votex bearing down on the midwest. In other instances the reference to a word only occurred within the HTML code of the page, and was not visible to the average Internet user. I tried to eliminate the majority of these pages, although some made it through to my analysis.

29 If a page was collected during the seal search, for instance, I would not re-collect it for the polar bear search. All of the pages within a particular site were analyzed together, so inclusion of duplicate pages would bias the results.

| Site | Start Search | End Search | Total Pages |
|---|---|---|---|
| Arctic Council | 12 Oct 2015 | 12 Oct 2015 | 7 pages |
| CNN | 12 Oct 2015 | 13 Oct 2015 | 152 pages |
| DID | 24 Nov 2015 | 24 Nov 2015 | 125 pages |
| ECCC | 13 Oct 2015 | 13 Oct 2015 | 223 pages |
| Fox News | 13 Oct 2015 | 13 Oct 2015 | 124 pages |
| Globe and Mail | 13 Oct 2015 | 14 Oct 2015 | 446 pages |
| GN | 14 Oct 2015 | 20 Oct 2015 | 165 pages |
| Greenpeace | 20 Oct 2015 | 27 Oct 2015 | 331 pages |
| ICC Canada | 27 Oct 2015 | 29 Oct 2015 | 56 pages |
| IPCC | 1 Nov 2015 | 1 Nov 2015 | 127 pages |
| ITK | 1 Nov 2015 | 3 Nov 2015 | 135 pages |
| NTI | 3 Nov 2015 | 4 Nov 2015 | 136 pages |
| Nunatsiaq News | 4 Nov 2015 | 5 Nov 2015 | 642 pages |
| Sierra Club | 5 Nov 2015 | 7 Nov 2015 | 66 pages |
| Wikipedia | 17 Nov 2015 | 18 Nov 2015 | 58 pages |

*Table 4.1. The search dates and total pages collected for each of the analyzed websites. I collected a total of 2793 pages across these sites.*

I collected data from a more general Google search for my keywords, without specifying a specific site. This provided me with a broad view of how the Arctic environment is discussed on the Internet as a whole, so that I could compare the themes of a general search to the results of analysis within my selected sites. I downloaded the first 300 results for each set of search terms (Canada Arctic seal | Canada Arctic polar bear | Canada Arctic whale).

This sampling method resulted in a fairly large dataset—too large to analyze, within the timeframe of my dissertation, using only qualitative methods. However, my research questions require a nuanced exploration of the discursive strategies being employed within the various sites. This requires more sophisticated forms of analysis than many basic quantitative methods used by early research into the Web, such as the production of word clouds. I employed an

innovative combination of topic modeling, an automated quantitative method that excels at analyzing large datasets, and critical discourse analysis (CDA), a much more nuanced qualitative approach. My previous research has demonstrated that these two methods complement one another—topic modeling provides broad insight into the dataset and allows for the isolation of smaller samples of data, while CDA allows for a more nuanced analysis of these smaller samples (Young, under review). By employing the two methods together I could both identify broad patterns in how the Arctic was represented and how knowledge systems are invoked across these data, as well as identify the specific mechanisms used to produce these patterns.

### 4.3.1 Topic Modeling

To identify representational and epistemological patterns or striations in my data, I analyzed my entire corpus of data using a topic modeling algorithm. This algorithm, called latent Dirichlet allocation (LDA), currently enjoys widespread popularity in the digital humanities (Blei 2012; Blei, Ng, and Jordan 2003; Meeks and Weingart 2012). It is also increasingly being adopted within the social sciences, although it is still not widespread within the discipline of geography (Mohr and Bogdanov 2013; Mutzel 2015; Wagner-Pacifici, Mohr, and Breiger 2015). LDA is an inductive method of computational analysis that identifies word clusters within natural language (Rhody 2012). It does this by re-imagining document authorship along statistical lines (Blei 2012; Templeton 2012). The methodology imagines that documents within a dataset are produced not by authors following grammatical rules, but through a probability-based word selection process. This process requires two sets of probabilities—the probability that a particular content theme is contained within a document, and the probability that a particular word is found within a theme. Documents are produced by randomly choosing themes (weighted by the probability of how likely a theme is to occur in a given document), then

randomly choosing a word from within that theme (weighted by the probability of how likely a word is to occur within that theme), writing that word down, and then repeating that process over and over again. The LDA process then reverses this process—it starts with the document and then works backward to determine the themes within the document and the probabilities that could have statistically produced that mixture of themes within the document. These themes are represented as word lists. The final result provides "a model of how likely given words are to *co-occur* in a document." (Goldstone and Underwood 2012, np) I wanted to produce these themes so that I could better understand patterns in how different Websites represent the Arctic environment or invoke different knowledge systems. I further analyzed these patterns, as described below, for the types of relationships they normalize between IQ and Western science.

Despite its popularity LDA has weaknesses, particularly when not being used with a very large dataset.[30] Schmidt (2012, 2013) argues that LDA results are easily misinterpreted because scholars too often view themes as being too ontologically stable and coherent. LDA analysis might divide a single theme into multiple themes, or to combine multiple themes within a single theme. For instance, a theme describing the word 'seal' might incorporate multiple meanings of that word[31]—seal as an animal and seal as a closure. This can lead to a rather incoherent theme, since it will list words that co-occur with both uses of the word. Nevertheless, these dangers of the method can be minimized by utilizing a number of tactics (DiMaggio, Nag, and Blei 2013; Mohr and Bogdanov 2013; Wagner-Pacifici, Mohr, and Breiger 2015). First, the researcher should consider the model holistically rather than looking only at a single theme—this will help

30 In fact, my corpus is smaller than optimal—most scholars employing LDA have datasets that include at least tens of thousands of documents. However, Mohr and Bogdanov (2013) find that LDA is useful even with very small datasets—they use it to analyze a total of 18 articles, with useful and interesting results. Furthermore, the qualitative analysis performed in this project helped to verify the validity of my results—themes appeared to be coherent and useful, based on my analysis of the pages associated with particular themes.

31 MALLET is actually sophisticated enough to use contextual clues within the text to differentiate between different meanings of the same word, thereby allowing it to produce fairly nuanced analyses of natural language usage.

them to smooth out inconsistencies across the various themes. Second, the researcher should leverage subject-matter expertise to validate the descriptive plausibility of the model. Third, researchers should not interpret results as evidence of final truths, but instead as offering new perspectives that are generative of new ideas and questions. For this dissertation, I look at my models holistically, utilize my own subject-matter expertise in Inuit studies to verify results, and primarily use the method to generate questions and insights for further analysis with CDA. I also further validate the plausibility of my model during this CDA analysis.

I used MALLET, a Java-based instantiation of LDA, to perform my analysis (Weingart 2012). Because MALLET is only capable of ingesting text documents, I first had to process all of my Word, PDF and HTML documents to make them usable text documents. Before doing this conversion, I added a prefix to each of my documents so that they could all be processed together without losing their identity. This allowed me to retain the connection between the document and its corresponding URL. I added a prefix to each document that included information about the site and search term used to locate it. For example, I added the prefix AC_pb_ to designate that a document was in the Arctic Council/Polar Bear subdirectory. I generally used the initials of the organization for the first part of the prefix, and either s (seal), pb (polar bear), or w (whale) for the second part of the prefix. I used a basic Bash (Unix shell) script, executed within an Ubuntu 14.04 LTS command line, to add all of these prefixes to the documents. The command for adding 'AC_pb_' to documents, for instance, took the following form:

*for f in *; do mv "$f" "AC_pb_$f" ; done*

From here I did the actual conversions to text files. Word Documents were the most easily converted, since there were very few of them. I just copied the content of these documents and then pasted them into a new text document. PDF documents were also quite easy to convert—I

simply used Adobe Acrobat Pro X's Action Wizard to convert all PDFs to text. Unfortunately, this process did not work for all of the PDF documents. There were either conversion errors or the documents were too large to be processed. This resulted in the loss of 67 documents. I found this to be an acceptable loss, since it is only about 2% of my dataset. The HTML documents were the most difficult to convert, since I both needed to convert them to text documents and also to strip them of HTML code. I used a combination of a Bash script and the Lynx text-based web browser application to accomplish this task. I used the following script:

```
#!/bin/sh
# h2t, convert all htm and html files of a directory to text
for file in `ls *htm`
do
new=`basename $file htm`
lynx -dump $file > ${new}txt
done
#####
for file in `ls *.html`
do
new=`basename $file html`
lynx -dump $file > ${new}txt
done
```

This process stripped all of the HTML code from my files, so that they did not add noise to my analysis. I then combined all of the resulting text documents into a single sub-directory. I repeated this process for all of the documents resulting from my more general Google search, and added them to a separate sub-directory.

MALLET works by incorporating a corpus of data (in this case, my text documents), stripping this corpus of common, or stop, words that might hinder analysis (such as *and*, *but*, and *the*), and transforming the data into a format that it can quantitatively analyze. The original installation of MALLET comes with a list of stop words in English, but it is possible to add additional, custom lists to the process. For my initial round of analysis I included a list of

common technology-related words that I believed did not add anything to my analysis, such as 'file', 'template', and 'html'. I then imported data for each website into MALLET, to create a MALLET file that could be analyzed. My import command looks like this, using Sierra Club as an example:

> *bin/mallet import-dir --input Dissertation/SierraClub --output Dissertation/Output/sierraclub.mallet --keep-sequence --remove-stopwords --extra-stopwords tech_stop.txt*

I then used MALLET to run a topic routine on the transformed files. This routine provides me with a list of themes, where each topic is a list of words that are clustered together in a statistically significant manner throughout the various documents analyzed. In order to train these topics, I had to make a few choices. I needed to decide how many total themes I wanted to produce, optimization intervals for analysis, and the number of iterations of analysis to perform across the data. I selected an optimization interval of 10 and an iteration count of 1000, based on recommendations from Weingart (2012). The number of themes (*num-topics*) is dependent upon one's data, and can very much affect the output of analysis. I decided to run analysis multiple times with varying numbers, so that I could choose the output that gave me the most plausible themes for each site. If I specified too few themes, then every web page within a site will have the exact same themes. If I specified too many themes, then the themes will be too fine. This would result in unhelpful themes that cannot be compared across the different pages. I ran my analysis using *num-topics* of 50, 75, 100, and 200 (plus, 25 for very small datasets or 400 and 800 for very large datasets). My final MALLET script looked like this (again, for the Sierra Club data):

> *bin/mallet train-topics --input Dissertation/Output/sierraclub.mallet --num-topics ??? --optimize-interval 10 --num-iterations 1000 --*

*output-state Dissertation/Output/sierraclub-state.gz --output-topic-keys Dissertation/Output/sierraclub-keys.txt --output-doc-topics Dissertation/Output/sierraclub-composition.txt*

Output from this command lists the resulting themes ranked by their prevalence throughout the entire corpus of data. A theme might appear something like this:

*climate ice change human snow weather gas water cultural land permafrost effects observations impacts coastal*

The words in a theme are listed in order of the probability that they will occur within that theme. For the example above, *climate* is the most probable word to occur in this theme while *coastal* is the least probable. MALLET also provided me with a separate list of which topics are the most prevalent within each of the individual Web pages analyzed. These outputs gave me broad insights into the topics found throughout the different sites, thereby allowing me to compare the relative emphasis that each site places on different types of issues. I ran analysis on each site separately, and then a second time on the data from all of the sites together. I did not include the data from the general Google search during this second iteration of analysis.

I reviewed this output to see if my analysis could be further optimized. Even after choosing an optimal *num-topics* count for each site, I found that my outputs incorporated quite a bit of noise—often small words that I felt should have been included in my stop words lists. I went through the output and created a custom stop words list for each site, for a second round of analysis. I also specified that I wanted MALLET to output a word count file, that lists how often a word occurs within each theme, so that I could better analyze the prevalence of particular words throughout the themes. Finally, I shortened the number of words in each theme to get more concentrated/specific themes that make more sense. I changed my MALLET script for this second round of analysis to:

*bin/mallet import-dir --input Dissertation/SierraClub --output Dissertation/Output3/sierraclub.mallet --keep-sequence --remove-stopwords --extra-stopwords SierraStop*

*bin/mallet train-topics --input Dissertation/Output3/sierraclub.mallet --num-topics ??? --optimize-interval 10 --num-iterations 1000 --num-top-words 16 --output-state Dissertation/Output3/sierraclub-state.gz --output-topic-keys Dissertation/Output3/sierraclub-keys.txt --output-doc-topics Dissertation/Output3/sierraclub-composition.txt --word-topic-counts-file Dissertation/Output3/sierraclub-wordcounts.txt*

At the end of this process I had (1) a list of the themes which occurred across the pages of each site, (2) a list of the themes that occurred across all of the sites, analyzed together, (3) a list of themes occurring across my general Google search, and (4) a list of the prevalence of the themes that occurred within each individual Web page that was analyzed. I subjected these outputs to further content analysis, described in the following section.

4.3.2 Qualitative Content Analysis

Upon completing analysis within MALLET, I then reviewed the outputs using fairly standard content analysis techniques (Babbie 2010; Kitchin and Tate 2000). I examined all of the lists of themes for each site, collection of all sites, and general Google search. For each list, I examined each theme and coded each with both emic and etic codes. The emic codes identified the general topic that unified all the words listed as part of the theme. Each code was composed of a primary and secondary code, separated by a colon—the primary code identified a general family of themes, while the secondary code identified a more specific theme within that family. For instance, *climate change* is a specific theme within a broader family of *environmental* themes. I would code this as Env:Climate. This coding process was both inductive and iterative, and I continually refined my codes as I went through the analysis of each site (Kitchin and Tate 2000). I took notes throughout the coding process, and my overall schema was adjusted to make

my codes better reflect the data, be more logical, and be simpler whenever possible. A full list of the themes I coded can be found in Appendix I. These themes allowed me to examine whether patterns existed between the ways different types of Websites represented and discussed the Arctic environment.

I was also interested in the degree to which each site discussed indigenous issues, IQ, Western scientific methods, so that I could understand patterns in how different knowledge systems are invoked to make claims about the Arctic. I used etic codes to identify the presence of any of these categories within each of the themes. At the completion of the coding process, I tallied the number of each family of codes that occurred within each site as well as the number of themes that was coded with each of the etic codes. I created tallies both for all of the themes related to the site, as well as for just the 25 most prevalent themes for each site. I created both tallies because the themes are ranked by their prevalence—the top themes are more prevalent within a site than the later themes. By creating the two different tallies, I was better able to understand the overall content within the site. This process allowed me to efficiently discover *what* topics were being discussed across the many different sites, which allowed me to pose deeper questions about the content and to focus more narrowly on subsets of the data of interest. However, this process does not provide me with insights into the more subtle aspects of *how* topics are being discussed—for this, I needed to turn to more detailed forms of qualitative analysis.

### 4.3.3 Critical Discourse Analysis

Topic modeling and content analysis revealed the topics being discussed online but did not describe how topics are arranged to persuade readers of truths about the world. To expand analysis from a listing of topics to an understanding of the functioning of discourses, topic

modeling can be combined with qualitative analysis (Ramsey 2011; Young, under review). From my full corpus of data I selected Web pages for further qualitative analysis. I selected 15 pages from each site for further analysis. More specifically, I selected 5 pages from the three most prevalent themes[32] that occurred within the site. For instance, the most prevalent themes from the DID website were themes 67 (coded Activism:Organizational), 17 (coded Community:Movies), and 40 (coded Environment:Conservation). For each of these themes, I selected the 5 pages in which the theme most prevalently occurred.[33] My selections were based on the following order of priority: (1) pages that have my theme as its largest theme and (2) pages with a higher percentage allocation of that theme. So, for instance, if a page has Theme 90 as its most prevalent theme at 9%, I chose that page over a page that has Theme 90 as its second most prevalent theme at 10%. This selection process was used because it gave me pages that offer a good representation of some of the most prevalent themes associated with the overall site.

I then analyzed these pages using a discourse-historical approach (DHA) to critical discourse analysis (CDA; Reisgl and Wodak 2009). CDA offers tools for exploring discourse as a social practice affected by and productive of power. DHA is a particularly inductive approach that traces how components of a discourse are brought together into intertextual and interdiscursive relationships. The DHA recommends several steps of analysis, performed recursively, which this project used to identify how environmentalist discourses have been constructed across the different sites. First, I identified environmental topics, relationships, and orientations within each Web page, as well as the processes, materialities, and actors which were assembled to produce those topics. Second, I examined how the prominence of topics is

32 I required that at least one of these themes be coded with an Environment code. If the two most prevalent themes were not coded Environment, then the third theme would be the most prevalent Environment theme related to the website. This may not be the third most prevalent theme overall for the site.

33 If a page had already been selected based on another theme, then I would not re-select it for the next theme. I would skip down to the next unique page with a high prevalence of the theme.

mitigated or intensified through claims to normative rightness, emotive or affective argumentation, attempts to manage contradictions, and the forging of alignments between different themes (Reisigl and Wodak 2009). This includes attempts to assimilate or de-politicize other topics. This analysis gave me better insight into how specific knowledge politics, technological platforms, and discursive practices were employed by digital users to produce particular relationships between IQ and Western science, and to extend or break down epistemological hierarchies.

I performed CDA on live versions of the page, so that I could interact with the page and follow links to other pages (Rogers 2013). I performed all CDA by hand in Libre OfficeCalc, using the form displayed in Appendix II. I began by recording basic information about each page, including the date it was analyzed; the date it was published; its title, author, and URL; its primary MALLET theme; its genre; any multimedia on the page; and its primary language. I then read through the page once to build a basic understanding of the page's primary themes. From here I used a second reading to record the content of the page, the discursive strategies used to discuss that content, and evidence that demonstrated those discursive strategies. I identified discursive strategies including nomination strategies (constructions of actors, materialities, and processes), predication strategies (discursive qualifications of actors), argumentation strategies (justifications of truth claims or normative rightness), perspectivization and framing strategies (positioning of the writer's point of view), and intensification and mitigation strategies (modifications of the illocutionary force of the evidence). Finally, I did a third reading to record observations about how the page characterized IQ and/or science, how it represented the environment, whether it included potential mediating concepts, and the degree to which it was written in an intertextual, interdiscursive, or interepistemological manner. This last reading

allowed me to tie specific discursive strategies to the types of interepistemological relationships they produced within the text.

Once I completed analysis of all the pages for each site, I then performed additional analysis of social media applications related to the site. These included Twitter, Facebook, Instagram, Flickr, YouTube, SoundCloud, Google+, or LinkedIn, depending on the site. For each application I recorded basic information (platform type, handle, URL, languages used); notes on the overall tone, framing, themes, and purpose of postings; how the page characterizes IQ, science, and the environment; the number of followers and others being followed; interesting notes; and a summary of key takeaways. This allowed me to make similar observations about the interepistemological politics emerging within these social media platforms. The form used for this analysis can be seen in Appendix III.

Finally, I reviewed all my notes and summarized my observations for the site. The form used for this summary work can be found in Appendix IV. This completed the digital analysis component of the work. By the end of this process I had successfully described the prominent ways in which Arctic environmentalism is articulated online (Q1), as well as the discursive construction of both mediating concepts (Q2) and striations (Q3) related to those environmental themes.

*4.4 Fieldwork-based Data and Analysis*

I performed fieldwork in the Canadian hamlet of Igloolik, Nunavut for ten weeks, from 14 June – 28 August 2016. Prior to this fieldwork I acquired research approval from the University of Washington Human Subject Division, acquired a Scientific Research License from the Nunavut Research Institute, and coordinated with potential research partners to ensure the success of my trip. I reached out to individuals at Kingulliit Productions and at the Arctic

College—the former due to their interest in Inuit new media and the latter based on their overall social science efforts in Igloolik. Michelline Ammaq, Jon Frantz, and Zach Kunuk of Kingulliit Productions, and Rachel Qitsualik at the Arctic College Oral History Project were all instrumental in helping me plan my trip and reach out to potential participants. Alexina Kublu also provided critical support for the trip, both through her years of patient Inuktitut instruction and through connecting me to members of the community. During my stay in Igloolik I participated in three forms of research—participant observation, archival research, and semi-structured interviews. This research helped me to identify aspects of IQ that were incompatible with digital representational practices, and could not be identified through analysis of digital material. This allowed me to understand how digital striations made the Internet differentially accessible to IQ and Western science. Fieldwork also helped me to better develop my understanding of IQ, and to ask participants about specific aspects of digital infrastructures and practices that they felt excluded their participation in online discussions.

#### 4.4.1 Participant Observation

Throughout my stay in Igloolik I observed the everyday interactions of adults in the community, to identify the presence of the Internet in everyday life and to determine how Inuit discuss their Internet usage with one another. On an average day I spent time walking around the streets of the hamlet, hanging around community gathering spots (such as the Community Hall and the front of the Co-op and Northern grocery stores), and visiting with friends. I also participated in several community celebrations, including Canada Day, Nunavut Day, and the celebration of the community's successful bowhead whale hunt. Finally, I had the incredible opportunity to travel out on the land to camp and participate in hunting trips. Kublu arranged with her sister, Michelline Ammaq, for me to go out camping and on hunting trips with their

family. Out on the land I learned to make rolls of walrus meat, and I had my fill of *nattirjuaq* (fermented seal meat). This also gave me the opportunity to observe the presence of technology at campsites and even out on those hunting trips. I recorded my observations in a small journal, and then later transcribed all of these notes for further analysis. In addition to these notes I also collected photographs of notable aspects of the community, including evidence of technological infrastructure. These photographs were stored with my field notes for further analysis.

### 4.4.2 Archival Research

I was also quite fortunate to receive permission to examine the materials housed within the library of the Nunavut Arctic College's Oral History Project (OHP). The OHP has an incredible wealth of books on the history of Igloolik, Inuit culture and language, and even the expansion of the Internet and other new media in Nunavut. Of even more interest are their published interviews of elders in the North Baffin area. I spent a few hours of most days of my stay working in the OHP office, looking through these various sources for material relevant to my study. Relevant excerpts were compiled in a document for further analysis.

While at the OHP office I also had the opportunity to spend a lot of time with others in the office, including Kublu, Rachel, Michah, Levy, and Louis. They all helped me to learn a great deal about Inuit culture and thinking, and to think about my own position in the community. At one point Rachel mentioned that her goal for the summer was to make me more of a real person, more of an *inuk*. She said that the term *inuit* is often translated as people, but really means something more like ‘sentient ones’. She argued that the sentience of Inuit lies in their nonlinear and nonhierarchical thinking, and especially in their realization that people are equal to, and not better than, other animals and the rest of the natural world. Starting as though I were an Inuk child, they taught me Inuktitut baby talk and string games. I then learned about

hunting, iglu construction, identifying edible plants, the spiritual relationships that Inuit have with the land, and much more. All of these experiences forced me to listen, see, and think in new ways, which ultimately helped me in thinking through the questions of this dissertation.

### 4.4.3 Semi-structured Interviews

The primary focus of the fieldwork was to perform semi-structured interviews with adult Inuit participants. Upon arriving in the community I reached out to contacts made throughout previous time spent in Igloolik, to invite them to participate in the study and to request contact information for other potential participants. The project used respondent-driven sampling to find new potential participants. This purposive, nonprobability sampling technique was selected because Inuit culture emphasizes the importance of sharing knowledge only with those that you know and trust. Relying on personal introductions to new participants is the most practical and the most ethical approach to sampling. Furthermore, I felt that this sampling technique was sufficient because this study is not attempting to generalize its interview findings in such a manner that probability sampling would be necessary. I interviewed a total of 21 participants. Interviews occurred in English at a location of the participant's choosing—often either at the OHP office, in the participant's home, or at the research bunker at which I was staying. Prior to each interview, I reviewed the study procedures with the participant and helped them to fill out a consent form. At this time participants were asked whether they wished to have their names published in my findings, alongside the knowledge that they provided, and, if so, whether they would also like to have their photograph published. This allowed me to properly recognize their contributions to the study. 16 participants chose to have their names shared: Micah Arreak, Christine Quassa, Isaiah U. Patterk, Abraham Ivalu, Cindy Qamukaq, Sandy Qamukaq, Justine Paniaq Qamukaq, Leonard,  Eva Qattalik, Peter, Bruce Hualli, Zacharias Kunuk, Toby Otak,

Francis Piugattuk, Elijah Evaluarjuk, and Johnny Airut. Photographs of some of participants can be found in Figure 4.2.

*Figure 4.2. Interview participants that wished for their photographs to be shared in the dissertation. Top Row (left to right): Christine Quassa, Isaiah Patterk, Abraham Ivalu, and Cindy Qamukaq. Middle Row: Sandy Qamukaq, Leonard, and Peter. Bottom Row: Bruce Haulli, Toby Otak, Francis Piugattuk, and Elijah Evaluarjuk. A special thanks to all of them, as well as ten others, for their participation – the project would not have been possible otherwise! Qujannamiik! (Photos by author)*

Interview questions were designed to gain insights into Inuit perceptions of environmental discussions occurring online, to include how they are participating in these discussions, whether online discussions are excluding important aspects of environmentalism or Inuit participation, and whether and how they believed discussions on the Web are shaped or

constrained. The interviews themselves were divided into two types of questions. The first type of question was primarily descriptive—it explored how participants used the Internet, whether and how they consume or contribute environmental information online, and what strategies (if any) they use to communicate their views to diverse audiences online. This allowed me to understand the types of knowledge politics in which Iglulingmiut might involves themselves while online. The second type of question was more causative in nature—it explored participants' perceptions of why online discussions have evolved in particular ways. I asked participants how they believe environmental discourses have been shaped online, about the incompatibilities between digital spaces and Inuit knowledge systems, and about the attributes of the Web that discourage or encourage Inuit participation. Participants were also asked to specifically discuss their online experiences with DID, because it is a site designed specifically for Inuit use. See Appendix V for the basic interview script. Questions were sometimes added or removed depending on the identity of the participant—for example, I included additional questions about the Internet and small businesses in my interview of Elijah Evaluarjuk because he owns one of the hotels in Igloolik. Interviews were audio recorded using an Olympus WS-853 Digital Voice Recorder, and were then transcribed for further analysis.

#### 4.4.4 Content Analysis

My fieldwork resulted in three data sources – notes based on participant observation, excerpts of materials from the OHP, and interview transcripts. I performed an inductive analysis of these data using an open coding approach (Kitchin and Tate 2000). I analyzed all three data sources together, looking for common trends that might shed light on core theoretical insights related to my research questions. I was primarily looking for descriptions of how digital infrastructures and practices excluded or transformed IQ, or for descriptions of how the Internet

was being used by my participants to build mediating concepts or transformative encounters with qallunaat. This process was iterative, meaning that I refined my codes as I went through each document (Kitchin and Tate 2000). This helped me to triangulate information across the different forms of evidence and to ensure consistency (Baxter and Eyles 2010). Throughout the open coding process I relied on my knowledge and theorizations of IQ, Western science, and digital politics to produce emic codes. For instance, codes like "experiential learning," "loss of traditional values," and "hunting" helped me to relate technology and IQ, while codes like "lack of technical skills" and "accessibility" helped me tie information to better theorize factors producing striations on the Web. Due to the relatively small size of my dataset, I performed all coding in LibreOffice Writer. I find that this basic approach to coding helps me to remain closely tied to the richness of the qualitative narratives themselves, rather than too tied up in the coding schema itself. Photographs were also stored within LibreOffice Writer and coded using the same process.

*4.5 Conclusion*

This mixed methods approach offers a lot of advantages for answering my research questions, since each individual method was selected to complement the others. Web-based analysis was designed to answer descriptive questions about how Arctic environmentalism is digitally represented. The topic modeling and content analysis components of this analysis allowed me to understand the broad patterns that characterize how digital users invoked different epistemological systems to describe the Arctic environment. Critical discourse analysis then allowed a more detailed understanding of the specific digital practices used to produce those patterns—including the invocation of epistemological and normative systems to justify claims. I also used this method of analysis to understand whether these patterns positioned these

knowledge systems within a hierarchical relationship. Although this method could not handle the same quantity of data as topic modeling, it overcame topic modeling's limitations (less qualitatively nuanced analysis) within a subset of the dataset. In this way these digital methods supported one another in answering research questions 1, 2, and 3. However, all of these methods were limited in their ability to answer question 4, since this was largely a question of causation. Fieldwork in Igloolik was designed to not only to expand on my answers to questions 1-3, but also to specifically address question 4. Through interviews I solicited information about the aspects of the Internet that might limit Inuit participation in digital, environmental discussions. OHP material, and particularly their published interviews with elders, helped to overcome limitations in my interview method—it was very difficult to interview elders in their community due to my limited fluency in Inuktitut, and these published interview transcripts helped to provide some elders' perspectives on a broad range of technologies. Participant observation helped me to further validate my understandings of how Iglulingmiut interact with technologies. Taken together, these methods rigorously address my four research questions.

Naturally, my positionality as a relatively privileged, male qallunaaq from outside the community inevitably biases my analysis and understandings of the dynamics of Inuit digital politics. First, my life and education within deeply Western and southern contexts means that there is great risk that I will interpret my findings through a distorted cultural and epistemological lens. Inuit perspectives can be subtly, but nonetheless quite radically, different from southern perspectives. Even the use of English for the majority of my research and analysis can lead to significant distortions in my understanding of Inuit ideas (Cameron et al. 2015). This presents not only problems for the validity of my research, but also potential ethical issues. In particular there is some risk that I will use this dissertation to speak for Inuit, in a manner that

further marginalizes their voices (Robinson and Tormey 2010; Spivak 1988, 1992, 1999, 2008; Tuhiwai Smith 1999). To try to minimize some of these issues, I have taken a number of precautions. I have spent years studying Inuit culture, IQ, and Inuktitut, including intensive language training in Igloolik. I have tried to use these experiences to improve my own ability to learn to speak and listen to Inuit, and perhaps even to unlearn some of the biases built into my own qallunaaq position (Spivak 1998). Additionally, I have attempted to scope my research questions and answers with some humility—with this project I do not profess to be capable of offering an 'authentic' representation of what it means to be an Inuk online or what Inuit digital politics really is. Rather, this is a project that revolves around the ability to listen—it asks whether the Internet is set up to facilitate respectful listening between qallunaat and Inuit. In this manner the question itself is grounded in my own positionality, since it is ultimately a question about whether the Internet facilitates my qallunaaq ability to encounter Inuit perspectives.

Second, my positionality is likely to have limited my access to both participants and to knowledge. For both cultural and historical reasons, Inuit can be hesitant to share their knowledge with researchers (Cameron 2015; Laugrand and Oosten 2010). Participants may also feel a desire to tell researchers what they want to hear, rather than the truth, or even to distort information to protect culturally sensitive knowledge. I attempted to minimize these problems by triangulating multiple sources of information, and also by using my subject-matter expertise to validate the information provided to me. More importantly, though, I did my best to integrate myself into the community over my two separate visits, and to forge partnerships with local organizations[34] in order to better gain the trust of Iglulingmiut. While I do not feel that I fully gained the trust of all participants—a few months is just too short of a total duration in a community—I am hopeful that I built strong relationships with some Iglulingmiut, and now

34 OHP and Kingulliit Productions

count them as my friends.[35]

Finally, research with indigenous communities does not end with the completion of data collection or the publication of findings—the research must be made accessible to the community if a researcher has any chance of avoiding an exploitative model of scholarship (Tuhiwai Smith 1999). I will be sharing my results with the Nunavut Research Institute, the Nunavut Arctic College, and Kingulliit Productions, in the hope that it might prove empowering, or at least interesting, to the Iglulingmiut that helped to produce it. I will also post results on my academic website, with the hopes of making it widely accessible to Inuit (or others) engaging in digital politics themselves.

35 Of course, these friendships may also create tensions or biases within my analysis—I do feel pressure to represent my findings in a way that paints Igloolik in a good light and empowers my participants. I have done my best to navigate tensions between bringing an analytically rigorous and critical perspective to my work, and maintaining an ethical commitment and friendships to participants.

## 5. The Digital Arctic: Erosion of the Social Fabric of *Inuit Qaujimaningit*

I'll just say that our culture is just dying... all that from the Internet. -Justine Paniaq Qamukaq, Iglulingmiut

### *5.1 Introduction: Digitality and the Social Transmission of IQ*

This is the first of three chapters that examine how digital practices, along with the materialities that shape them, produce highly striated spaces of encounter that reinforce epistemological hierarchies. These striations reinforce the hierarchical dominance of Western science within environmental discussions, and consequently extend epistemic violence against Inuit Qaujimangit (IQ) onto the Web. This chapter demonstrates how the adoption of digital technologies have eroded the embodied social practices that are critical to the transmission of IQ within Inuit communities, and replaced them with behaviors that reinforce representational models of knowledge transmission. Inuit technology users find themselves increasingly separated from IQ holders as well as from the embodied and land-based practices that allow them to acquire IQ themselves. This does immediate epistemic violence to Inuit communities themselves, since it destroys the epistemological linkages that youth have with Inuit culture. It has led some Iglulingmiut, including Justine, to even fear that Internet use is killing off Inuit culture and knowledge. Given that Inuit technology users are less likely to be IQ holders themselves, this process also diminishes the likelihood that IQ will emerge across the spaces of the Web. This means that the *in situ* effects of technological practice preclude, or at least greatly diminish, the possibility of transformative, digital encounters between Inuit and qallunaat.

Section 5.2 sets up the infrastructural context of digital technology use in the Arctic. It describes how material and political economic constraints have greatly restricted the development of digital infrastructure across Nunavut. As a result Nunavummiut face reduced access to the Internet when compared to individuals living in the South. The following sections

then describe how widespread adoption of digital technologies alongside this restricted Internet access has impacted social behavior within Inuit communities. Sections 5.3 and 5.4 describe how Inuit increasingly stay in their own homes instead of visiting others, and how, even when they do leave their homes, they stay in the community rather than travelling out on the land. This is uniquely devastating to IQ since it is a knowledge system fundamentally based around experiential learning and the social transmission of knowledge. When Inuit do travel, they increasingly bring technologies with them. Section 5.5 describes how mobile technologies have re-trained Inuit eyes and bodies such that they relate differently to the Arctic environment. These shifts in social behavior all negatively impact the continued existence of IQ.

*5.2 The Infrastructural Context of the Digital Arctic*

The material and political economic difficulties of establishing a robust digital network within the Arctic structure every aspect of Inuit engagement with the Web. Participants constantly complained about the shortcomings of communications infrastructure in Igloolik, describing Internet as terribly slow and unreliable. These complains are best understood within the broader context of digital divides in Canada. As recently as 2014 the *CBC News* lamented that Canada has the 53rd fastest average data upload speed in the world, at only 5.67 Mbps (Nowak 2014). [36] This was below the global average of 7.6 Mbps and the Group of Eight (G8)

36 Two networking concepts are important for the following discussion – bandwidth and latency. Network bandwidth refers to the average rate at which data are successfully transferred within a communication path. It is often measured in megabits per second (Mbps), or the maximum number of bits an Internet connection is capable of uploading or downloading in a second. In contrast, latency refers to the amount of time it takes a single packet of data to travel from one point in a network to another point and then back again. A common metaphor for comparing bandwidth and latency is that of a pipe transferring water (Hoffman 2011). Bandwidth is roughly equivalent to the diameter of the pipe, which determines the volume of water that can be transferred by the pipe over a given amount of time. Latency refers to the length of the pipe, which determines how long it will take any water to reach its destination. Both bandwidth and latency affect the end user's experience, since they affect the responsiveness, download speed, and upload speed of Web applications. I should note that participants were often confusing bandwidth with one other dimension of Internet usage, data usage caps. This is the amount of data that they are allowed to download in a given month, based on the contract they have with their Internet Service Provider. Participants regularly described their 10 GB data usage cap, which prevents them from downloading more than 10 GB worth of data, as being the speed/bandwidth of their Internet. Usage

average of 8.8 Mbps. This poor connectivity has been blamed on market failures within the Canadian telecommunication industry, and specifically on the monopolization of regional markets by large corporations. Without competition there has been little incentive to improve speeds or to reduce prices (Nowak 2014).

Since 2014, though, Canada has made significant investments in its mobile infrastructure. The country now has some of the best mobile speeds and coverage in the world, with a national average of a 19 Mbps download speed (CBC News 2016a). Nevertheless, the quality of both broadband and mobile networks remains uneven throughout the country, and they often come with very high price tags. This led the Canadian Radio-television and Telecommunications Commission (CRTC) to hold a series of hearings in April 2016, to determine whether broadband Internet should be classified as a basic right of Canadians (Dobby 2016). Such a classification would increase the regulation of the Internet industry, and potentially increase subsidies for Internet access by Canadians that are currently underserved by the market.

Representatives from Nunavut, including the non-profit corporation Nunavut Broadband Development Corporation (NBDC), have been quite vocal at these hearings due to the long history of poor Internet connectivity in the territory (Molnar 2014; Oudshoorn 2016; Rogers 2016; Spinu 2016; Zerhei 2016). Local dial-up Internet first came to Iqaluit in 1995 and slowly spread to other Nunavut communities after that (Nunatsiaq News 2002). At this time connection speeds were prohibitively slow, hovering around a 14Kbps download speed in locations like Igloolik (Soukup 2006). In these early years organizations, including Isuma Productions, experimented with using satellite phones to connect to the Internet from out on the land, but the costs were astronomical for even light usage (Soukup 2006). A large step forward occurred in

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caps determine how much data can be consumed within a month; bandwidth and latency determine the speed at which it can be consumed.

2005, when all communities in Nunavut were finally connected to broadband Internet (Soukup 2006).[37] The spread of broadband was largely a result of advocacy by NBDC, but also required over $200 million in federal funding as well as additional funding by Digital Canada, the National Contribution Fund, and provincial, territorial, and municipal governments (Molnar 2014; Soukup 2006).

Despite these advances Nunavummiut still do not have access to the same quality of services as the rest of Canada. Internet access remains unreliable and slow[38], meaning that Inuit continue to face a lag in full access to digital networks (Dobby 2016; Molnar 2014; Oudshoorn 2016; Rogers 2016). Internet regularly goes out for entire communities or even the entire region. In 2011 the entirety of the Canadian Arctic lost Internet for 16 hours due to a satellite software glitch (Byers 2016), and during my own field season several communities in the Yukon, Nunavut, and the Northwest Territories lost Internet because a fibre optic line was cut by a construction company in northern British Columbia (CBC News 2016b; Tukker 2016). These outages can have wide ranging effects—they compound feelings of isolation and inequality in the North and hinder both economic and governmental activities. This summer's Internet outage in Igloolik, for example, came just as someone at OHP was about to help her son submit a college application. The outage delayed the application, which put them at risk of missing important deadlines.

Even when networks are functioning correctly, the Internet moves at a snail's pace. Depending on the community Nunavummiut have the option of getting service from one of three

37 Nunavut was about a year behind Nunavik in launching its broadband Internet services (George 2004). This may help to explain why studies of Inuit Internet usage in Nunavik, such as those performed by Pasch (2008, 2010), show high Internet participation rates.

38 Internet access is also incredibly expensive – see Chapter 6 for a full discussion of costs and their political effects.

different companies: Northwestel, Qiniq, or Xplorenet (Zerehi 2016).[39] Regardless of their choice, the speed of consumer Internet tops out well below downloads of 5 Mbps and uploads of 1 Mbps (Molnar 2014; Rogers 2016). [40] These slow speeds were confirmed by both my participants and by my own experiences in Igloolik. Participants described Internet speeds with phrases ranging from 'pretty slow' (Qamukaq 2016) to 'mega slow' and 'fucking slow' (Haulli 2016), with speeds dropping further at the end of the month. Connection speeds also get lower during lunch hour and at night, when people are surfing the Web instead of working at their jobs. Local bottlenecks in Internet networks create this dynamic, since they leave many users vying for finite bandwidth. Some participants believed that Internet has been slowly improving, but emphasize that bigger changes are still needed. Elijah Evaluarjuk, owner of the Tujurmivik Hotel in Igloolik, eloquently described these current conditions after being asked whether the Internet has improved over time:

> A little bit. It's improving a little bit. But, in the North it's still... compared to down South it's still very slow. You know, they were talking about that cable line, big cable, what do you call that? Fibre optic. Yeah. I don't know if that's ever going to come around because that's gonna be a costly thing. But, you know, if it ever came around then we'd welcome it. Anything, you know, to get faster Internet. (Evaluarjuk 2016)

Elijah's quote highlights Igloolik's lack of key infrastructural elements – networks based on fiber optic cables – along with the material and economic constraints that continue to prevent network upgrades. As I discuss below, Igloolik does not have access to fiber optic networks because (1) its geography makes installation of such networks costly and (2) its small population doesn't provide telecommunication companies with the economic incentives to justify the upfront cost of this installation.

39 In Igloolik customers may choose either Qiniq or Xplorenet.

40 These were the target minimum speeds set by the CRTC for the Arctic for 2015, a target which has still not been achieved (Rogers 2016).

During my time in Igloolik I quantitatively confirmed the observations made by my participants. One Friday afternoon I tested Internet connection speeds from a Government of Nunavut (GN) computer using a handful of different online testing applications. The website testmy.net consistently recorded my connection at a download speed of around 3 Mbps and failed to record any upload speed at all. Two other services gave slightly better results – speedtest.net recorded a download speed of around 5 Mbps and an upload speed of around 0.9 Mbps, while an AT&T speed test recorded a download speed ranging between 8 Mbps and 12 Mbps and an upload speed of around 4 Mbps. The more alarming statistic, though, was that the AT&T test recorded a network latency of over 600 ms. In other words, it takes 6 full seconds for a website to start to respond to any interaction that you have with it. By comparison, Verizon guarantees enterprise customers a monthly average latency of 90 ms or less for network transmissions between London and New York, and 45 ms or less for data transmission within North America (Verizon, nd). These speeds, based on testing with the GN network, are actually faster than what is available through Internet services at one's own home in Igloolik – the fastest home connection available through Qiniq is advertised as having a download speed of up to 2.5 Mbps and an upload speed of up to 256 Kbps (Qiniq no date a). Tests of my phone's connectivity, via Bell wireless, revealed even worse results, at both download and upload speeds below 1 Mbps and a network latency of 700 ms. Throughout my fieldwork, I almost never noticed Iglulingmiut using their mobile phones for Internet usage. This may change as communities are upgraded to 4G networks, a process that was ongoing within Igloolik during my fieldwork. Qiniq advertises that these network improvements will give customers access to download speeds of up to 3 Mbps and upload speeds of up to 512 Kbps (CBC News 2015). This is, nevertheless, still quite slow when compared to speeds in southern Canada.

These issues are directly tied to the unique architecture of the Internet in the Canadian Arctic. Instead of being connected via fiber optic cables, as is the case in most of the world, communities in Nunavut are connected to the Internet via a series of satellites that are in geostationary orbit above the equator. These satellites are “at the limits, and sometimes beyond, the required direct line of sight” required for uninterrupted service (Byers 2016, np). The long distance that data must travel to these satellites is at least partially responsible for the latency of Arctic Internet. Problems are exacerbated by outdated telecommunications equipment within the communities themselves, which are responsible for providing the 'last mile' connection between homes and satellites (Spinu 2016). Within Nunavut there are two different models for this last mile infrastructure: a community-aggregator model and a direct-to-home model (Molnar 2014). The community-aggregator model uses a land-based station to connect satellite transmissions (specifically, C-band transmissions) to a local, wired network. In Igloolik this service is offered through Qiniq, and administered by the local company Savik Enterprises, Inc. The direct-to-home model allows consumers to use their own modems to connect directly to satellite transmissions (specifically, Ka-band transmissions). This service is offered throughout Nunavut by Xplorenet (Figure 5.1). Both options have their drawbacks, which contribute to the unreliability, slow speeds, and cost of Arctic Internet.

*Figure 5.1 An Xplornet satellite installed on a home in Igloolik. Photo by author.*

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These network issues have a deeply geographic basis—communities are served by satellites because they are so far from most of the infrastructure that composes the Internet (Molnar 2014). This geographic reality is strongly affected by both market and governmental factors. The costs of installing and operating satellite networks, or of potentially installing underground cables to the North, are quite high. Kuhnke (2009) estimates the 5 year cost of installing and maintaining satellite-based Internet in an Arctic community to be over $1.2 million. The low population density of the Arctic does not offer much incentive for companies to accepts those costs. Even optimistic income projections for Internet service providers fall far short of overcoming these costs—Kuhnke (2009) estimates a 5 year income of about $610,000, which makes for a deficit of $640,000 over those five years. As a result only a few companies have entered the telecommunications industry in the Arctic, and they feel little to no competitive pressure to provide customers with better service (Molnar 2014; Zerehi 2016). Furthermore, even

these companies rely heavily on government subsidies in order to provide basic services (Petersen 2012a). Funding issues at this governmental level further contribute to market failure. Short funding cycles prevent companies from wanting to make significant system overhauls or investments in new infrastructure (Molnar 2014; Spinu 2016; Zerehi 2016). This problem is worsened because there is no single federal agency that acts as a point of contact for Arctic broadband. Responsibility and funding is split between agencies including the CRTC, Industry Canada, Innovation Science and Economic Development, Infrastructure Canada, Aboriginal and Northern Affairs, and many others (Spinu 2016). Many of these agencies will prioritize available funding for pressing matters other than Internet—Aboriginal and Northern Affairs, for instance, is far more likely to spend infrastructure funding on housing and water than it is to spend it on Internet (Spinu 2016). Without some change in this situation, NBDC expects that the digital divide between northern and southern Canada will only increase in the coming years.

Several potential solutions have been proposed to solve these network problems but, to date, none have gained enough forward momentum to give the Iglulingmiut with whom I spoke much hope. During the CRTC hearings Oana Spinu (2016), executive director of NBDC, argued that the only long-term solution is the installation of fibre optic cables leading to Nunavut. Currently an American company, Arctic Fibre, is attempting to do just that by building a cable that runs from Asia to Europe via the Northwest Passage. This cable would benefit communities along the northwest coast of Alaska, as well as several communities in Nuanvut (Sponagle 2016). However, this is the third company to attempt to bring fibre to Nunavut, and many believe that Arctic Fibre will need government support to avoid the failures of the past attempts (Sponangle 2016). According to NBDC's calculations it will cost a billion dollars to successfully get the fibre to Nunavut (Spinu 2016). The cable installation will need to be paired with

improvements in local infrastructure, which NBDC argues must be driven by locally-owned telecommunication companies (Dobby 2016). The First Mile Connectivity Consortium (FMCC), a First Nations non-profit, as proposed the creation of a Northern Infrastructure and Services Fund (NISF) to support these companies. Unless massive levels of funding are found, however, it is likely that improvements will only be incremental, such as the upgrade of Igloolik's mobile infrastructure to 4G (CBC News 2015). The Polar Communications and Weather Project has proposed placing two new satellites into orbit above the polar region, to improve the reliability and capacity of the Arctic network (Byers 2016). Lack of public funding, however, turned this into a military project with no guarantee of public access to the satellites. Another proposed solution is the increased use of high-throughput satellites (HTS), which would offer faster connection speeds (Molnar 2014). Even if this comes to fruition, though, the CRTC believes that these faster satellites will not meet the North's needs in the long run (Spinu 2016).

These layers of infrastructural constraints within Nunavut produce unique digital disadvantages for Nunavummiut Internet users. They are spatially and temporally restricted in their Internet usage. Spatially, lack of infrastructure means that there are no public Wi-Fi networks in the community, and that Iglulingmiut tend not to use their mobile devices to access the Internet. Instead, they most often use home-based modems to access the Internet – a practice that encourages them to stay within their own homes more often. Even when Iglulingmiut do choose to use their mobile phones to access the Internet, these do not work very far outside of the community itself. As will be explored later in the chapter, this limitation has had an impact on desires to travel out on the land away from the community. Temporally, Iglulingmiut face regular Internet outages that can have large economic and personal impacts, and they also face restrictions in terms of what times they can use the Internet to achieve more optimal speeds.

Regardless of the time they choose to surf, their Internet connections are much slower than the speeds faced by southern Internet users. This results either in decisions to modify their Internet usage, so that they use less data[41], or the need to spend *more* time sitting in front of their computers to accomplish the same tasks that southern Internet users could complete quite quickly. The latter effect amplifies the degree to which Internet usage encourages Iglulingmiut to stay in their homes and community, rather than socializing in person or traveling on the land. The epistemological effects of these changes in behavior are discussed throughout the remainder of this chapter.

*5.3 Staying at Home, and its Impact on Inuit Sociality*

The infrastructural constrains of Internet use in Igloolik reterritorialize patterns of Inuit socialization away from the embodied and collective practices that transmit IQ. In doing so they erode IQ within communities and encourage more individualized and representational approaches to knowledge consumption. This makes it less likely that Inuit technology users will be hold IQ themselves, and therefore less likely that those users will express IQ within the digital spaces that they encounter. As a result the embodied practices of accessing Internet within the community have a direct effect on the degree to which IQ is represented online, and reinforce the hierarchical relationship between IQ and southern epistemologies.

This section describes how Internet usage patterns have transformed Inuit socialization patterns within the community by encouraging Iglulingmiut to stay at home more often. My participants widely believed that the centralization of the Internet within houses has had an impact on the amount that Inuit go outside. Many participants said that they observed children to be playing outside less in the community, and they believed that this was an effect of the

[41] This process of self-disciplining is explored in Chapter 6.

Internet. Rather than choosing to go outside and play with one another, young Inuit are more often inside surfing the Web or playing games on their mobile devices. Participants observed even very young children using the Internet more and more often. When asked about the effects of the Internet on the community, one participant said:

> I guess people are staying inside more. When I was a kid we did not have TV... we did not have TV until I was nine years old, the whole community. I was staying out, like, playing tag or something, running around all the time. I don't think kids do that much anymore. Mostly staying inside and doing Facebook. (Confidential Participant 13C 2016)

Another participant, Cindy, observed that kids no longer play with wagons or homemade boats around the community, nor do they play street sports as often with one another.[42] Naturally, technology is criticized in a similar fashion in the south – parents lament how children play outdoors less often and socialize with one another in person less. However, Peter and Cindy are describing changes in behavior that are uniquely damaging to behaviors that directly support Inuit knowledge transmission. First, they both describe how the children are becoming less social with one another – they are no longer playing sports. As described in Chapter 2, Inuit knowledge transmission is a uniquely social activity – knowledge is often passed from person to person, and is particularly useful if it is passed from elders to youth. By shifting behavior from embodied interactions between children to (written) interactions on a screen, digital technology usage encourages Inuit to shift toward a more (textually) representational model of learning about the world.

Second, Cindy's quote demonstrates how technology may be eroding the experiential aspects of Inuit knowledge acquisition. Building wooden boats and wagons, and working with

[42] Personally, I did observe many children outside playing on the playground, jumping on ice along the shore, riding their bikes, or playing baseball in the street – so the Internet has not entirely eroded these types of behaviors. Nevertheless, many of my participants were quite adamant that the quantity of time spent outdoors by children had dramatically decreased.

other Inuit in teams, are embodied activities that experientially teach children the skills that they need to survive in the harsh environment of the Arctic. She feared that Internet use amongst children would lead them to not acquire such skills. During an afternoon session of a public technology camp in Igloolik, I listened as young adult participants expressed a lot of their own concerns about how technology has affected their Inuit identity. They posited that the Internet was having a negative effect on Inuktitut speaking, causing them to stay inside more often, leading them to not interact with elders as often, and even reducing their ability to be able to withstand the cold (since they are not playing in blizzards during the winter). One individual even expressed the belief that young peoples' minds have become too weak to be shamanic or to engage with the spiritual components of IQ. In their mind, Inuit could no longer withstand interactions with the powerful spirits that inhabit the Arctic. These comments connect digital engagement to a foreclosure of Inuit children's' abilities to access key aspects of Inuit knowledge.

Internet use also affected social norms within the community, leading to an erosion of in-person social interactions. For example, many participants discussed how it was negatively impacting family dynamics within the community, such that the intergenerational sharing of knowledge is being negatively impacted. Christine argued that addiction to the Internet is reducing the ability of parents to provide for their families. During her discussion of the Internet, she said: "Yes, I notice that. I bet all over the world now [people are addicted]. Because of the damn Internet, they can be constantly, right into it, all day. And, yet, they have to take care of their family." (Quassa 2016) The amount of time spent online by children has also traded off with their time spent doing chores. Toby Otak spoke extensively about her fears about the Internet impacting the degree to which her daughter helps around the house:

> With the young people I find that they are so much focused into it, and some are not interested. Like, I have an eleven year old girl and I try my best not to get her involved with Internet because she will lose focus on life. And, with her being the oldest, she will help out a lot with the younger... with her younger sisters. And, if she loses focus she won't pay attention to the younger ones. (Otak 2016)

Once again, this demonstrates a connection between Internet usage and the acquisition of social knowledge. By helping with her younger siblings, Toby's daughter is both socializing and learning important skills that will help her someday to care for her own family. Toby fears that too great a focus on the Internet will deny her both opportunities, and also negatively impact Toby's own ability to care for her family. Another participant echoed some of these concerns, arguing that time spent on the Internet has encouraged children to be more individualistic and less likely listen to their family. They said that, "More younger… younger generations are not listening to their parents, grandparents, and not doing enough to help around because they're doing the, they're facing the Internet more." (Confidential Participant 12C 2016) This negatively impacts the strong and highly family-oriented social fabric of Inuit culture in ways that undermine the transmission of knowledge from parents to youth.

Many participants believed that youth are far less likely to visit with elders, particularly when those elders live out on the land rather than in the main community. Elder Abraham Ulaaajuruluk (1992) argues that this process started with television. When asked why it was that elders are no longer visited as frequently by youth, he said:

> I will not be able to give you a true reason but I feel that I can respond to that not entirely accurate but some truth to it. There is no doubt that many people do not ask themselves why we no longer go around and visit the elders. […] I also know that a person would rather stay home watching television, as a matter of fact I do not always watch television but when I do I can stay and watch rather than using the time to visit the elders. I know that some people just will not tolerate television for they know that they will not get anything out of it and does not accomplish anything. (IE211, 3)

Elijah also worried that Internet use was having a negative impact on the relationship that elders had with the children in the community. He said, "Elders will see too many young people with their iPads or whatever, just looking at the screen instead of looking around them. They're not doing that as much now." These trends are particularly troubling given that elders are widely recognized as holding the most IQ within communities – both because they have lived longer, and because they are more likely to have engaged in a lifestyle that kept them out on the land more often. If technology does decrease interactions between children and youth, then it will have a devastating impact on the long-term survival of IQ. Elijah did feel that youth could be told to put their technology away to learn – but this, of course, requires parents and elders to be pro-active in carving out time for children away from technology.

These changes in behavior were not restricted to the relationship between elders/parents and children, but extend to all forms of in-person interactions. Interviews of elders reveal that this trend started long before the Internet, with the introduction of both the telephone and the television. Louis Alianakuluk Utak (2002) argues that the telephone led people to stop visiting people to talk to them, and instead to just use the telephone or CB radio. Now "all we do is wait for the phone to ring to talk to that person. This has become your visiting tool" (IE506, 12). He felt that the result was an increase in unsocial behavior and feelings of discomfort when visiting others in person:

> You become unsociable, you no longer seem to care about others, because you can communicate with others without seeing them face-to-face. For instance as you and I talk, we see each other as we talk, we respond to the others comments with facial expressions. But now we need not do that in order to talk to each other. This is the way we are now. (IE506, 12)

Once again this both reduces unique forms of Inuit culture – the role of facial expressions in

communication – and reduces social situations in which Inuit knowledge might be passed from one individual to another. Utak continues, after being asked whether he feels uncomfortable visiting others:

> Very much so, if you do visit, you immediately get attention, they know that this visit is not a social visit but something serious is the dictatorial factor for the visit. […] the people's reaction in this household are going to change. Their immediate thought is, the purpose of my visit is not just a social call, but something serious. That is the way we are now. If this was in the past, it would be a normal social interaction. But now with the convenience we no longer seem to be as sociable. (IE506, 12)

Now, when people do receive visitors, they are often too busy using their technology or TV to be sociable. Peter contextualizes these arguments to current usage of the Internet:

> Okay. I've been living all my life here. I mean, I've gone to other communities, but I've been here ever since I was born... I was born here. Yes, about the Internet... when we started to have that in the early to mid-90s, or something like that, when you visited a friend, when they have internet they were just sitting and typing... I noticed that the first time when we starting to have internet, people were mostly just watching, I mean looking at the computer on Internet, eh? I noticed that one time. (Peter 2016)

As a result Peter felt that people were less sociable. Another participant agreed that people tend not to visit one another at home anymore, and that visits are now awkward as a result. Instead, people tend to stay in their homes and communicate with one another through Facebook.

Digital technological practice also negatively impacted the sociality of Igloolik by encouraging antagonistic behaviors amongst Iglulingmiut. When asked about online behaviors that they did not like, participants consistently discussed the judgmental and critical relationships that emerged online between Iglulingmiut. Justine discussed how people in the community often tease and criticize one another through updates to their Facebook status and through more direct forms of chatting. When asked whether this sometimes amounted to bullying, she responded:

> Yeah, there's sometimes bullying, but it looks like they get out of it pretty quickly. It looks like... they now tell people pretty quickly and they would stop. And then their siblings or parents would tell that person who is bullying to stop and then they would, but sometimes they don't. Yeah. (JP Qamukaq 2016)

Toby indicated that gossip and 'negative talk' were two of her pet peeves when it came to online behavior. She said that she had recently had a conflict with some members of her family and felt bad when they posted details about the event online. Multiple participants had even withdrawn from Facebook, or the Internet more broadly, due to the negative impact it had on their relationships with other Iglulingmiut. Bruce, for instance, strongly believed that social media spaces allowed Iglulingmiut to escape community norms and say whatever they wanted. He felt that this was particularly damaging in a small community like Igloolik, since the constant exposure to judgment can lead to depressed feelings.

Some participants identified online discussions of death as another example of an abrogation of community norms that negatively impacted Iglulingmiut. They pointed out that it was very important for bad news, like a death, to be shared personally from one person to another. The local radio station even goes off the air for 1-2 days following a death in the community, so that no one accidentally talks about the death on their station prior to the funeral. This gives people time to learn about the death from the family instead of the radio, as well as time for people to mourn. No such prohibitions seem to exist on the Internet, and bad news seems to travel very quickly via Facebook and other platforms. Participants felt strongly that it could be both shocking and emotionally difficult to receive bad news in such a public and impersonal manner. Toby expresses these feelings well:

> But, when bad news comes around I find that some are having a hard time keeping it to themselves and not waiting for other people to find out through phone or anything or from person-to-person to let them know. Like, death or injuries. And finding out through

> Facebook, like, publicly, it's *really* difficult. Instead of being told. (Otak 2016)

This is, once again, an example of how the openness of the Internet leads to behaviors that directly contradict Inuit norms, and negatively impact the community as a result.

These antagonisms and ruptures in social norms undermine the family structure and social fabric of Igloolik, both of which are critical to the transmission of IQ. While digital antagonism is certainly not unique to the Arctic, it is uniquely damaging to Inuit communities. Not only is antagonist online behavior like trolling rooted in partisan and masculinist forms of Western culture (Phillips 2016), but it also exacerbates mental health issues produced by the historical colonial violence inflicted about Inuit (Eggerston 2015; Kirkup 2016; Stevenson 2014). During my time in Igloolik I regularly heard of concerns about mental health, depression, suicide, and substance abuse. More widely, there are concerns that social media are a contributing factor for suicide in Canadian indigenous communities (e.g. Porter 2017), and many participants made similar connections between social media use and mental angst. These issues tear families apart, impact the material and psychological ability of Inuit to get out on the land, and thereby destroy key sites and institutions that support the transmission of IQ.

These behavior patterns represent a profound shift from the type of sociality that I observed out on the land. Whenever I traveled out to camps on the land with Kublu, we would stop to talk at many different shacks and tents. At each stop we sat with tea and bannock bread, and conversations about the environment, hunting, or family would ensue. These social visits are critical sites through which social bonds were maintained and knowledge was passed along. These effects led some participants to be quite bleak about the future of Inuit culture. Despite identifying herself as an avid technology user and 'Internet freak', for instance, Justine argued that Inuit culture is “just dying... all that from the Internet.” In fact, I heard this phrase – that the

Internet is killing Inuit culture or that Inuit culture is dying – over and over again throughout my stay in Igloolik. Johnny Airut believed that a solution to some of these problems might come in the form of public WiFi across Igloolik. In this way people would at least be able to use the Internet outside, rather than being stuck in their homes. Johnny said, "They could have something else, if they have WiFi outside instead of just staying home, and that kind of thing." However, as the next section demonstrates, even this community-focused solution may still separate Inuit from the land-based relationships to the environment that are vital to the acquisition of IQ.

*5.4 Staying in the Community, and its Effects on Knowing the Environment*

Even when Inuit left their homes, their ties to digital infrastructure within the community often leads them to choose to not travel out on the land. There are two reasons why Internet use is difficult out on the land. First, there simply isn't the infrastructure to support Internet signals far from the communities. Second, even if a signal did reach far out onto the land, the frigid temperatures of the Arctic are very difficult on technology. Unless devices are specifically designed to withstand the cold, they are likely to malfunction or to have their batteries quickly drained. As elder Louis Alianakuluk Utak (2002) points out:

> In my own opinion, because I am a traditional Inuk, I think that there is negative outlook if these knowledges are no longer passed on. Though they will not become immobilized, but if they solely depend on satellite for navigation, there is always a problem with malfunctioning gadgets, or it might get damaged, or it runs out of battery, then they will no longer have anything to depend on for navigational purpose. I have already seen this happen. If they want to have a backup navigational equipment, then they must depend on reading natural environment, something that is not going to get damaged, however they must know how to read conditions for navigation. (IE506, 11)

Utak's (2002) quote makes two important points. First, technologies are likely to fail out on the

ice either through damage or the loss of battery power. Second, though, he also expresses his fear that these technologies are incapable of fully replacing Inuit knowledge and that this Inuit knowledge is no longer being pass on. If Inuit are to learn this knowledge, then they need to do so out on the land. One of my participants confirmed Utak's observations, but added that weather also complicates technology use on the land:

> Well, in a blizzard there's no signal, not much signal. Or, that device will freeze in the winter time and run out of batteries. And, you can't depend on that much... devices that sometimes work. Well, sometimes they won't work if you don't know how to work them. (Confidential Participant 13C 2016)

This quote points out that it is not only the physical hardware that has difficulty in extreme weather, but also even less tangible digital signals have difficulty penetrating the blizzards that characterize Arctic winters.

Participants expressed the fear that Inuit were more often abandoning trips onto the land than they were willing to abandon their devices. They observed that individuals are not participating in camping and hunting trips as much, and that they also are not spending the time to visit with elders that still live outside of the main community. For example, one participant shared a story about how his friend skipped a hunting trip because he was downloading movies to his computer at home:

> Oh yeah. One time we were gonna go caribou hunting and we heard that one of our friends, a man, was going to go caribou hunting with us. But, when we left he was a no-show. After the weekend we came back and asked him why he didn't come... he said he had everything packed, he just had to go and put on his warm clothes and go. But, he started watching a movie and stayed home. (Confidential Participant 13C 2016)

Sandy Qamukaq echoed these observations, saying that time spent on the computer was directly trading off with opportunities for Iglulingmiut to go out on the land and learn.

This is particularly damaging to the Inuit knowledge system, since IQ very much stresses the importance of experiential and embodied learning on the land. Participants emphasized how the Internet itself was incapable of providing young people with the same type of learning experience as time spent on the land, even if they used the Internet to learn about the Arctic. When asked whether young people could learn IQ through the Internet, Sandy responded: "Umm, not through the Internet, but when they go out on the land, hands-on, that's when they're learning. But, I see a lot of young people that are not willing to go anymore." (Qamukaq 2016) Francis offered a more concrete example of one type of knowledge, igloo construction, that could not be acquired in any way except experientially. When asked whether there are certain types of knowledge that can only be learned out on the land, he responded:

> I think so, I think so. Like, in theory, like in theory, building an igloo. You know that you cut snow blocks and you build spirals and then the top, it's held up by that top block there. It's another thing to know about it theoretically. Okay, in a classroom, you cut snow blocks, and then you make a spiral, and then you build it up. It's angled. It's when you're actually trying to build your first igloo that you'll notice that you have to have the right type of snow, not too hard and not too soft, and even when you have the right type of snow, how to get the snow block properly. And, how to angle it so that your igloo doesn't fall soon, like it's not so high that you can't reach the top. (Piugattuk 2016)

Through this conversation Francis makes a distinction between representational forms of knowledge transmission – such as looking at an image of an igloo or reading a textual explanation of how to construct an igloo – and experiential knowledge acquisition – learning how to angle and spiral ice blocks by doing it oneself. In Inuktitut this difference is expressed through two different words – *ilinniarniq*, learning by receiving instruction, and *pilimmaksarniq*, learning by doing. Francis argued that igloo construction cannot be learned in any way other than experientially, since there are too many complex variables involved. By encouraging Inuit to not

go out on the land, technology use denies these digital users the opportunity to engage in *pilimmkasarniq*, which is a key method of IQ transmission. Francis argued that hunting is another activity that requires experiential learning – it is only through observation and trial and error that a young Inuk can become a good hunter. Given how foundational hunting is to both Inuit culture and the relationship between Inuit and the Arctic environment, hunting remains a key site for the generation and transmission of IQ.

In these ways the centralization of technology within homes and the main Igloolik community is exacerbating a dichotomy between those Inuit that stay home or in the community, and those that live and travel out on the land. Technology users are less likely to acquire IQ because they are less likely to socialize with one another, are less likely to visit IQ holders that still live out on the land, and are less likely to participate in land-based experiential learning that would allow them to acquire IQ. All of these trends erode the social fabric that supports IQ transmission, making it less likely for Inuit to hold IQ and particularly unlikely to transmit that knowledge to digital spaces. After all, the Inuit that continue to hold IQ are less likely to be the ones that use technology. All of these factors minimize the strength of the IQ system, and help to reinforce the dominance of Western epistemological system in both material and digital spaces.

### *5.5 Bringing Technology on the Land, or the Digital Training of the Body*

Despite the many constraints described above, Iglulingmiut still regularly travel out on the land – and manage to bring their technology with them. While their devices may not have access to the Internet, they can be used either to (1) play back media that was previously download from the Internet or (2) take photographs and videos that can later be shared via the Internet. Iglulingmiut regularly showed me photographs and videos that they took with their iPods while they were out on camping or hunting trips, and I was told that these are regularly

shared on Facebook. I also often saw technology at campsites. At one campsite I saw how Inuit had set up a wire on a poll to better pull a phone signal down near their tents (Figure 5.2) This allowed them to receive cell phone calls while out on the land. Another time I saw an Inuk set up his iPod with a wireless speaker while setting up traps on the ice for harvesting sea snails (Figure 5.2). Louis Alianakuluk Utak's (2002) discussion in the last section also highlights the increasing reliance on GPS devices for navigation in the Arctic. SPOT Satellite GPS Messenger units are also used to communicate the locations of travelers back to the community, to increase safety. They are also sometimes used to communicate successful hunts to the community – during my time in Igloolik I first learned of the success of the community's bowhead whale hunt via a Facebook posting from a SPOT device used by the hunters. This latter usage of satellite technology to communicate via social media is less common due to associated costs, but clearly does happen occasionally. One thing is certain – technology use is increasingly evident out on the land in the Arctic.

*Figure 5.2. Left: A metal wire that is attached to a pole and then run to one of the tents. The wire was installed through the ceiling of the tent, and allowed people in the tent to get cellphone reception. Right: An iPod and wireless speaker out on the ice. Photographs by author.*

These technologies are increasingly re-training Inuit bodies and eyes as they interact with the Arctic environment around them. This, once again, functions to erode the embodied practices critical to the acquisition of IQ. In some instances digital technologies simply encourage Inuit to pay less attention to their surroundings. For example, many participants expressed the fear that young people are bringing too much technology out on the land with them. As Micah said, the youth "can't seem to live without it now. They gotta bring whatever they have along with them to the cabin or camping. IPods or, you know… Facebook." Rather than looking at the land, hearing the environment, listening to elders, or practicing skills, Inuit youth are too often watching downloaded movies or playing games on their mobile devices. Louis Alianakuluk Utak (2002) states that:

> I think so, my own thinking is that they are not well aware of the

> things that they need to know. For instance they have so much comfort in traveling with all types of gadgets, they no longer pay too much attention to the environment around them. It appears to me that they are less observant with the surroundings that they must travel on. (IE506, 8)

He is concerned that the focus on technology is directly trading off with the time Inuit youth spend thinking about how to travel across the Arctic landscape. This is troubling for him because this attention is critical to acquiring the IQ that Inuit have long used to safely navigate the ice and to hunt.

Technological practice does not only decrease the degree to which some Inuit focus on the environment, but it also replaces the experience gained through that focus with new forms of environmental knowledge. In particular these technologies replace experiential knowledge, the bedrock of IQ, with representational and instrumental ways of knowing the Arctic environment. Utak (2002), once again, is concerned about how GPS are undermining the navigational abilities of Inuit. He points out that GPS encourage Inuit to think of travel in very instrumental terms. Utak (2002) says, "Once they set up their destination [in the GPS], all they focus on is to get to that destination as quickly as possible. They have in mind to get to a specific location, that is all their attention is focused on." (IE506, 8) GPS are thus doubly dangerous in Utak's mind – they both decrease the degree to which Inuit acquire IQ and they also replace that knowledge with reliance on (often unreliable) Cartesian representations of the Arctic. Not only is this evidence, to him, that people are "abandoning their Inukness" and that the "vast knowledge that Inuit hold are being put in the back burner," but it can also be quite dangerous (Utak 2000, IE506, 8). For instance, traveling in straight lines might lead a traveler to go over rugged or thin ice, or to get too close to the floe edge. These observations were confirmed by another elder, Theo Ikummaq (2000):

> One reason being that GPS gets you from point A to point B. And just from point A to point B only. It doesn't give you the dangers that are in between point A and point B. Whereas in traditional knowledge, like I was mentioning earlier, in order to be an effective hunter you have to know where you are at all times between point A and point B. You know what's under the ice, you know what's under the snow, you know what's there. But a GPS doesn't tell you that. It doesn't tell you the dangers of thin ice, it doesn't tell you the better routes to take if you are going from point A to point B. (IE506, 8)

Ikummaq (2000) compares this instrumental use of GPS to IQ-based forms of navigation, including the use of stars and snowdrifts to find one's bearings. Elder Abraham Ulaajuruluk (1992; IE211) similarly describes the ability of some hunters to hang their feet off their moving qamutiik, feel the ice beneath them, and then use their perception of the ice's thickness and slope to navigate. Ikummaq (2000) emphasizes that these abilities can only be acquired through practice, and certainly cannot be gained through use of GPS units. He does not even believe that these practices can passed along through written descriptions – only through being out on the ice and needing to actively rely on them.

Other participants made similar arguments about the effect of the Internet on their ability to know the Arctic weather. This process started before the Internet, first with weather forecasts on the radio and then later with television. Elder Alain Iyerak (1997) argues that IQ-based knowledge about the weather still exists in Inuit communities, but that he "does not hear the traditional predictions often anymore because we now can listen to the weather forecasts on the radio." (2) He worries that this knowledge is not being passed along to children. Utak (2001) goes further, arguing that much of this knowledge has disappeared altogether:

> Indeed, they knew a lot more in those days, because they did not depend on computers. They knew much more than we do today. For example, we now have had an overcast for a long, long time. If this was in the past, they would be able to predict what type of weather we would have for days to come. This past summer, starting for June or July, we have had very favourable weather conditions, this

> included the month of July and August, constantly sun shining. Then from late summer throughout the autumn, it is constantly overcast. This is to pay back the good weather conditions we enjoyed this past summer. That is the way it is. This past spring it was always good throughout summer, I believe it is now two months with constant overcast conditions. The people before us would have said that this is the pay back for the good weather. (IE487, 15)

This quote does an excellent job of demonstrating not only the empirical relationship between Inuit and the land, but also the moral economy that underlies that relationship – Inuit must later pay for the good weather that they have gotten with bad weather. This demonstrates the seamlessness of the IQ system, as described in Chapter 2, in that it highlights how knowledge of the moral economy of the Arctic environment also provides predictive insights into its future material conditions.

While these observations were made by elders, some of my own participants also confirmed them for me. Francis, for example, discussed how his job has led him to be more dependent on the Internet than on IQ-based methods of knowing the weather. When asked whether he thinks there are disadvantages of using the Internet he said:

> If you take it too much for granted, and, like, I'll give you the weather channel for instance. We go online to check the weather. And then, 'cause whereas in days of yore our forefathers would be on the land so daily that they would knew what the weather was happening, what was going to happen, or they sort of had an idea. But, us, today's generation, we're very much indoors. […] So, the best way for me to get an idea of what's going to happen is to go to the weather channel and download the weather for this region. (Piugattuk 2016)

Francis was describing how reliance on reliance on weather sites produces a positive feedback loop that increasingly erodes IQ-based knowledge. Inuit spend more time relying on technology to acquire knowledge about the environment, which then decreases their need to pay attention to the environment to acquire this knowledge, which then leads them to be even more reliant on the

technologies. He said that some hunters will now even call into the community with CB radios or satellite phones in order to get weather reports, since they no longer have as much ability to predict the weather on their own.

Participants identified a range of other forms of IQ that were being eroded or replaced through digital engagement. In each case participants emphasized how it is not enough to acquire knowledge by reading things online[43], but that it must be acquired experientially and out on the land. In the last section, for instance, I described Francis's discussion of how igloo construction and hunting must be learned experiential, as well as Sandy's belief that IQ must be acquired through hands-on practice. Elder Noah Piugattuk (no date) is worth quoting at length on these issues, since he offers an excellent summary of these many aspects of active experience and the acquisition of IQ. He is concerned that Inuit are losing their ability to hunt and to survive on the ice:

> Today, I can only understand the deficiencies on hunting skills some men posses, the only way to learn is to be actively involved. This is why it is important in the Arctic that there is know how to surviving skills. In the Arctic there will always be cold periods. When we were children, even perhaps too young we were made to do things that didn't seem appropriate, but these were part of our training. We cut snow blocks and made small pretend Igloos. We would ask questions to our elders how to do this and that, even if these were part of games. These were all part of our training. (IE070, 4)

He is concerned that Inuit are losing their ability to hunt and to survive in the Arctic, since they are no longer actively practicing these skills in a manner that allows them to acquire IQ. This quote, however, also adds an additional dimension to the acquisition of IQ – knowledge must be gained through embodied practice that is also performed with the guidance of elders. This is particularly problematic given that technological practice is increasingly dividing Inuit youth

43 Although, they often did recognize that reading things could still be valuable – particularly when it inspired youth to go out and apply the knowledge in a manner that would lead to experiential learning.

from elders, as discussed earlier in this chapter. Piugattuk (no date) goes on to describe the urgency for people to leave communities so that they can go out on the ice with elders and learn from them:

> When the younger people can go to older people to seek help, they too will be getting knowledge that they would not otherwise get in all subjects. The elders are dying off so their knowledge must be sought. As an elder when people ask questions we fell so much emotion towards then and we are so grateful when that happens. If they can only ask questions about survival in general they can learn so much. When they are able to go out with anybody they will be gaining some knowledge that they otherwise would not gain. If a person just stays in a settlement doing nothing to gain some practical experience, when he leaves alone this person will cause anxiety. Everything is difficult when you had not experience it. (IE070, 4)

This quote nicely highlights the many different layers at which technological practice is undermining IQ. It keeps Inuit away from elders and off the land, and then even when they are on the land they are relying on the technology rather than asking questions of and practicing survival skills with those same elders. These processes dramatically undermine the long-term resiliency of IQ as an epistemological system, and even actively work to replace IQ with some forms of southern knowledge. In the context of my work, this means that digital technologies are reproducing epistemological hierarchies even before IQ has been digitized in the first place. They make it less likely that Inuit that are also technology users will possess IQ, and far less likely that IQ will emerge online.

### *5.6 Conclusion*

This chapter described how the material manifestation of the Internet in the Arctic has negatively impacted the transmission of IQ within Inuit communities. Due to the lack of robust communications infrastructure the Internet in Igloolik has a limited footprint and ensures that Internet speeds are extremely slow. The centralization of this digital footprint within homes

encourages Internet users to stay inside of their own homes rather than socializing with others outside in the community. Slow speeds ensure that they stay in those homes longer to accomplish the same digital activities that would be much quicker in the south. In addition to decreasing the amount of socialization that occurs within Igloolik, the Internet increases feelings of isolation and antagonism in the community by breaking down social norms that usually guide interaction. This qualitatively degrades socialization. These trends erode the social fabric required for the transmission of IQ and also decrease the amount of time that Inuit youth spend outside engaging in group games that experientially teach them to survive together in the Arctic.

When individuals do venture out of their homes to interact, their desire to use technology still keeps them within the communities. This trades off with their time spent out on the land, which means that Inuit are not experientially learning land-based skills that have long been a bedrock of Inuit culture and a cornerstone of the IQ system. Instead of getting to know the environment through embodied and experiential interactions with it, Inuit are increasingly viewing the Arctic through the representational space of the Internet. Even when they do get out on the land, technology comes with them and continues to replace experiential learning with representational and instrumental modes of thinking. Taken together these processes decrease the quantity and quality of time that Inuit spend learning from one another and learning from embodied time in the Arctic environment. This uniquely damages the IQ system, makes it less likely that digital users will hold IQ themselves, and decreases the likelihood that IQ will emerge into digital spaces. This represents one set of practices that ensure the epistemological striation of the Web, and the continued dominance of southern ways of thinking and knowing the world within digital spaces.

## 6. The Digital Arctic: Differential Access to Digital Spaces and Audiences

"We can learn more from them through the Internet now than before. Not just through school. So, we're able to access information worldwide, so that's good, that's a positive thing. But, people have choices. They may not want to learn about the North, so they'll probably... [laughter]... won't." - Micah Arreak, Iglulingmiut

### *6.1 Introduction: Differential Access to Digital Spaces*

Where the last chapter explored the in situ effects of technological practice that decrease the likelihood that digital users will possess *Inuit Qaujimaningit* (IQ), this chapter examines the materialities and practices that make it more difficult for those that *do* possess IQ to express it within digital spaces. I argue that IQ has differential access to digital spaces when compared to southern epistemological systems, and particularly in comparison to Western science. I demonstrate how digital striations mediate which Inuit access the Web and which forms of Inuit knowledge come to be represented on the Web. When Inuit do engage the Web from an IQ-based perspective, a range of digital practices and norms work to compartmentalize their contributions within less visible spaces. In this way digital materialities and practices diminish the capacity of Inuit to share IQ, decrease the likelihood of transformative Inuit-qallunaat encounters, and ensure the continued stability of the colonial and hierarchical relationship between IQ and southern knowledge systems.

In section 6.2 I continue my discussion, started in Chapter 5, of how material constraints on digital infrastructure affect how Inuit engage the Web. It describes how the high costs of establishing Internet infrastructure in the Arctic are passed along to digital content consumers and producers. I argue that the very high costs of Internet access limits overall access to the Internet and shapes the types of digital engagements available to many Inuit. This section demonstrates that the confluence of limited digital infrastructure and high rates of poverty uniquely foreclose those digital practices most likely to effectively express IQ-based knowledge.

These factors also lead Arctic residents to adopt technologies and design digital spaces in ways that do not conform to the digital preferences of southern audiences. This, once again, decreases the likelihood of encounters between these southerners and Inuit perspectives.

Section 6.3 then explores how political norms built into digital spaces discourage participation by Inuit in political discussions. Digital politics encourages highly contentious and partisan forms of politics rooted in southern culture, and clashes strongly with the Inuit visions of consensual and respectful political practice that I described in Chapter 2. These norms of digital interaction dissuade Inuit from participating in sensitive environmental discussions with qallunaat, even when Inuit believe that qallunaat are misrepresenting the Arctic environment or Inuit. This dramatically decreases the likelihood of transformative encounters where they might matter the most – in conversations where the distance of qallunaat from the Arctic lead them to misrepresent the realities of the Arctic. Finally, Section 6.4 examines how Inuit perspectives have been stratified within digital spaces that focus exclusively on the Arctic, and appear far less within more global spaces. This is the case even when those global spaces represent the Arctic. As a result, even when Inuit do manage to engage digital spaces in a way that expresses IQ, it is unlikely that their engagement will reach the eyes of a broad or diverse audience. Taken together, these processes quantitatively decrease the number of opportunities for transformative digital encounters between Inuit and qallunaat. Rather, they ensure that IQ-based perspectives remain compartmentalized within small, Arctic- and Inuit-oriented spaces, while southern perspectives maintain hegemony within more broadly engaged spaces.

### *6.2 The High Costs of Digital Engagement, and Its Effect on Digital Form and Practice*

High costs associated with the Internet, when paired with high levels of poverty and low access to resources, diminish the ability of Inuit to express IQ online. In this section I describe

how these economic dynamics constrain the types of digital practices and platforms available to Inuit at both the level of digital content production and consumption. Specifically, they encourage Inuit to write and read English text rather than to engage with multimedia formats or to produce Inuktitut content. I argue that this form of digital engagement negatively impacts the visibility of IQ in multiple ways – by excluding key IQ holders from digital engagement, by denying Inuit access to data formats better able to express the oral and experiential aspects of IQ, and by compartmentalizing IQ within formats that are less visible to international audiences. Each of these processes striates the Web in ways that extend the hegemony of southern ways of thinking and diminishes the likelihood of transformative Inuit-qallunaat encounters.

Despite being both unreliable and slow, connection to the Internet commands a high price across Nunavut. As I described in Chapter 5, these high prices are due primarily to the costs of maintaining satellite communication systems within the Arctic – the 5-year costs of installing and maintaining satellite-based Internet in an Arctic community is over $1.2 million. These costs are then passed onto Internet users, and are especially high given the low number of users in each community. In Igloolik most participants reported using Qiniq for their Internet service, whose basic Atii Home plan costs $80 for 20 GB of data usage per month (Qiniq no date a). This data usage cap was recently increased from 10 GB per month. The plan offers download speeds of up to 1.5 Mbps and upload speeds of up to 256 Kbps (Qiniq no date a). Every additional gigabyte of usage costs the user an additional $15. If users "need faster speeds and a little extra usage," they can instead sign up for the Atii Pro service (Qiniq no date a, np). This will get them 30 GB of data with download speeds up to 2.5 Mbps and upload speeds up to 384 Kbps. The price is much higher for this service, at $269.95 per month.[44] Most of the participants in my study reported

44 All of these prices are for Nunavut households, residents, and students. For non-residents, temporary residents and visitors the Atii Home plan costs $140 and the Atii Pro plan costs $925.

paying for the Atii Home plan, but often also needing to pay for additional data usage every month. These data overage prices were particularly problematic for business owners like Elijah. Because he offered his hotel patrons free Internet, he ends up having very large bills at the end of the month. In response to a question about how much he pays, he responded:

> I don't know how much... very expensive. Once I add more gigabytes sometimes I end up $700-800 a month, depending on how busy we are. Like, if I have a lot of guests and they're all on the Internet, they'll use up my gigabytes so I might have to... when it gets too slow then I'll get some more gigabytes and by the end of the month that really adds up. (Evaluarjuk 2016)

Participants almost unanimously complained that costs were too high, although many nevertheless found the cost to be worth it to have access to the Internet.

These high costs force Inuit to make difficult decisions about how often they use the Internet. As Gilbert and Masucci (2011) point out, access to ICTs is always "constituted through [place-based] constellations of relations of power and inequality such as institutionalized racism, sexism, and class oppression." (5) Inuit access must be understood within an Arctic colonial history that, as described in Chapter 2, has produced high costs of living and denied Inuit access to livelihoods and basic social services. Inuit communities face high rates of poverty, and individuals regularly face hard choices as they care for themselves and their families. Some families struggle just to put food on the table for their children, a difficulty made more psychologically scarring given the history of starvation shared by many Inuit communities.[45] This history contextualizes the difficult decisions that my participants described in terms of choosing between Internet access and groceries every month. Some participants described not being able to pay for additional data after they had exceeded their cap for the month, and having to wait until the next month for additional Internet use. In other instance individuals would even

[45] These histories intertwine closely with the colonial decision to relocate communities to the High Arctic during the Cold War.

have to sell their modems for a few months to have enough money to provide for their families. Peter describes this situation for his family:

> I have to use a modem to connect to the Internet. Yes. But, Savik, down at... sometimes runs out of modems. Sometimes we have to wait. We do sometimes sell it, and we have to buy some more sometimes. […] Once we're broke, like, when we ran out of food, on the local radio sometimes we ask if anybody is interested in buying a modem. That's what we do a lot here in this community. (Peter 2016)

Peter's narrative stresses an additional hardware constraint on Internet access in Igloolik. To ensure that the digital network does not become even more overloaded, Qiniq only allows up to 100 modems to be registered to its network at a time. This increases the difficulty of the decision to give up one's modem, since it may not be possible to buy another modem when one does have money available once again. Iglulingmiut described switching back and forth between Qiniq modems and Xplorenet home satellites, and pointed out that this often impacted their quality of service. As more people switched to one network over another, that network would visibly slow down. In this way accessibility issues further exacerbate service quality issues even when Inuit can access the Web.

These infrastructural issues produce extremely complex access issues for Inuit. At the most basic level costs deny Inuit the ability to use the Internet at all, leading to the underrepresentation of Inuit views and material on the Internet. This produces a clear striation of digital spaces, in that qallunaat views tend to be (quantitatively) overrepresented in discussions of the Arctic. This denial of access also reproduces material inequalities within the communities, producing positive feedback loops. Many of these effects are described well within digital divide literature – business miss profitable opportunities, citizens cannot get access to government programs, and young people are barred from the potential educational experiences offered by the

Internet (Molnar 2014). The issue of education is particularly important given the epistemological focus of this project. Spinu (2016) observes that Inuit students are less able to complete their homework in Nuanvut's schools because they do not have sufficient Internet access at home. Even at school the Internet is not much better, since "all of Nunavut's thousands of students and hundreds of teachers in the territory's 42 K to 12 schools share 50 gigabits of bandwidth." (Spinu 2016, np) This denial of educational opportunities further diminishes the ability of Inuit youth to engage in knowledge politics on the Web when they do have access.

The cost of access also shapes the types of online behaviors and technological platforms available to Inuit when they are online. This deters Inuit users and producers from employing the precise technological practices and formats that best express IQ online. Consumers avoid data-intensive activities when they surf the Web so that they avoid exceeding data limits and escalating their monthly bill. Many participants described how they avoided downloading too many phone applications, photos, or videos. Justine Paniaq Qamukaq, for example, indicated that she would use YouTube more if she had access to a faster and cheaper Internet connection. She would like to be able to download more phone apps and photos. Isaiah Patterk indicated that he preferred Facebook to Twitter because he found that his Twitter usage was too data-intensive. When asked which social media site he preferred, he responded, "Definitely Facebook. I'm not allowed on my own Twitter because it's too many videos and it slows down the… bandwidth." Some participants talked about creative solutions to these data constraints, often involving downloading movies during trips to the south. For instance, Johnny Airut and his girlfriend load their iPods with movies every time they go on a trip to the south. I also heard that Iglulingmiut will often share these download with one another once they return to Igloolik, or even sell loaded hard drives to others in the community.

Knowledge of these user constraints, along with lack of access to newer technologies, strongly shapes the types of content that Arctic organizations produce. Nunavut-based government agencies and companies know that their primary users face high costs, low data caps, and low connection speeds. They know that these users will be unable to use, or will choose not to use, their sites if they include a lot of multimedia. They tend to produce sites that do not require data-intense activities on the part of their users. Web content producers often also lack access to newer technologies, technical support, and technical education activities, all of which constrain the types of content that they can produce. Most of the workstations that I noticed in the Government of Nunavut (GN) building in Igloolik, for instance, continued to operate on Windows XP, an operating system that Microsoft stopped selling in 2010 and stopped supporting in 2014. Much of the hardware was also quite old, and some of the offices still accessed data via floppy disk. I hear very similar stories of outdated equipment and lack of digital database structures from people working at other locations across the community.[46] Access to technical support further prevents Inuit organizations from making full use of new technologies. This specialist had to be flown to Igloolik from the GN's main office in Iqaluit. The lack of local technical expertise—and the reliance on having to wait for support to be flown in from elsewhere—seemed to be quite widespread. For example, when Igloolik become home to the Department of Environment's wildlife management division, they had a great deal of trouble filling any of the technical positions (CBC News 2013).

As a result many Arctic-based sites rely on older technologies, are text-heavy, and avoid multimedia. PDFs were a particularly popular file format for several of the Inuit sites that I

46 Not all technology that I encountered in Igloolik was outdated—many families had the latest models of laptops or mobile devices, and I found that Apple products were particularly popular. I found, though, that Iglulingmiut often bought these products on trips down to the south, and then brought them back up to Igloolik with them. I regularly saw people selling Apple products on the Facebook Sell/Swap site—iPods were particularly popular items.

analyzed, including the site of the Inuit Circumpolar Council (ICC) and the GN. This focus on long and detailed PDF files contrasted strongly with the designs of more globally-oriented sites such as CNN, Fox, the Globe and Mail, and Greenpeace. These sites instead contained a great deal of embedded media (photos and videos) alongside short stories. These organizations can utilize these modes of presentation because they are generally not as concerned with making themselves accessible to audiences that face the same Internet access constraints as Nunavummiut.

Additional economic constraints also contributed to English dominance across this textual material[47]. Computer hardware and software makes it difficult, and sometimes impossible, to use Inuktitut syllabics online. Inuktitut was historically only an oral language, with no written script. It wasn't until the mid-19th century that missionaries first began efforts to write the language, at which point two different approaches were attempted. The language was written using Roman orthography (*qaliujaaqpait*) in some areas, and using a syllabic system (*qaniujaaqpait*), based on an alphabet developed for the Ojibwa and Cree, in other areas (Dorais 2010). Qaniujaaqpait was far more commonly learned in the Igloolik area, and elders in particular seem most comfortable reading and writing in qaniujaaqpait. However, even to see qaniujaaqpait on a computer users often must download custom font drivers. To write using qaniujaaqpait they need both these fonts and specialized keyboards.[48] Cindy indicated that these software and hardware constraints led her to primarily use English while she is online, especially when she was using a mobile

[47] The hegemony of English is also driven by the colonial history of the Canadian Arctic – many Inuit were taught English instead of Inuktitut by missionaries, and lost knowledge of their language as a result.

48 They can also download custom programs that allow them to use Roman keyboards, but then translate a series of Roman letters into syllabics. If they do this then they need to memorize the sequences of keys that translate into the syllabics that they want to type. While in Inuktitut, I would sometimes practice my syllabics by translating articles from *Nunatsiaq News*. Occasionally we would find articles that were nonsensical, and discovered that it was because the author was incorrectly typing out Roman letters and thinking that they would directly come out as the appropriate syllabics. This offers some proof of the difficulty of getting qaniujaaqpait to work correctly on a computer.

device: “Umm, well, through my phone and iPod it doesn't have Inuktitut fonts. I can see the Inuktitut fonts with a laptop but not with a phone, I have to download it. […] I would prefer to use Inuktitut. Easier to read it.” This demonstrates how Inuit are forced to use English even when they prefer to read and produce content in Inuktitut.

Inuit organizations also produce a lot of their content in English. Elijah talked about the need for the GN to produce more Inuktitut games for Inuit children, so that these games could help them to better learn the language. Johnny similarly said that he only knows of a single mobile game that is in Inuktitut, and that companies need to produce more, high quality Inuktitut applications. These observations have been confirmed by my own analysis of Web content—I have found that English is much more present online, even within Inuit-produced sites, than Inuktitut (Young 2016, under review). I found that even sites like IsumaTV, which are expressly produced with Inuktitut content in mind, often contain content that is exclusively written in English. I have also observed that content seems to usually be first produced in English, and then later translated into Inuktitut (Young under review).

This lack of Inuktitut material is strongly linked to the lack of funding and technical expertise available Inuit organizations, which prevents them from producing much of their own digital content. This is well-demonstrated through the experiences of Isuma Productions, which has historically had a very difficult time finding funding for its projects and was forced to file for bankruptcy in 2011 (Evans 2008). Even when funding is available, they have difficulty finding programmers at all, much less programmers that also have Inuktitut fluency. As Zach said, when asked whether the Internet is being utilized enough to preserve and spread Inuit knowledge:

> Not yet, the Internet is still new. Programmers are still not coming out... down the road they probably will, as we learn how the system works. Yeah, everything is new to us. It's like films, when we started watching films up here, I thought it was God-sent. Until you

> find out that so many people work behind the camera. And somebody has to edit it, we never knew that. We're still learning. (Kunuk 2016)

Zach draws a parallel between his initial perception of films when they arrived in the Arctic, and the wonder that he, and many other Inuit, now feel in relation to the Internet. He viewed film as an incredibly powerful tool, but quickly learned that it would take a lot of effort and resources to master this tool. His work with Isuma Productions, and now Kingulliit, is but one example of how Inuit can adapt new media to empower Inuit. Now a similar dynamic exists online – the Internet has presented itself as a potential resource, but few Inuit have yet had the opportunity or access to the necessary tools and education to take full advantage of it. In this quote Zach demonstrates his confidence that Inuit will learn to program, just as he learned to produce film.

Taken together these various constraints have encouraged Inuit to produce and consume digital material in the form of written English, often stored within older digital formats like PDF. By shaping the behaviors and formats available to Inuit, these constraints have a direct effect on their epistemological engagement with digital spaces and other digital users. These constraints both deter certain IQ holders from participating online, make it more difficult to express IQ online, and decrease the visibility of IQ if it is expressed online. Each of these outcomes decreases the likelihood that Inuit and southern epistemological systems will significantly engage one another within digital spaces, and decreases the likelihood of transformative Inuit-qallunaat encounters.

First, the dominance of English across the Web makes it more difficult for the demographic groups most likely to hold IQ to participate in digital discussions. Elders, hunters, and shamans are most likely to hold IQ but also most likely to not speak or write much English. Many of my participants focused on the exclusion of elders from the Internet. As Elijah pointed

out:

> Not... elders here, the majority of them don't speak English, so... a lot of the Internet don't have Inuktitut so a majority of Inuit here in town don't speak English, so they probably... there might be an odd person that might have Internet. (Evaluarjuk 2016)

He draws a direct link between not speaking English and the decision to not participate online. Micah Arreak could only think of a single elder that had Facebook, and this was primarily because that elder had learned some English through residential schooling. Micah felt that the lack of elder participation was produced by a dual problem of lack of English knowledge and lack of technical literacy. She said, "[T]hey need to be taught. It's not in Inuktitut format, so you need to have some idea in English in order to be computer literate." This lack of participation was clearly reflected in my analysis of websites – elders' perspectives were not well represented. When they are present they most often take the form of PDF transcripts of elder workshops or video interviews, both of which are produced and uploaded by more savvy technology users. This means that some of the best sources of IQ are either missing altogether from digital spaces or, at best, mediated by other Inuit that have focused more on gaining technical literacy.

Second, the trend of translating Inuktitut material from English, rather than producing it in Inuktitut to start, also has important political effects within the context of climate change politics. Cameron et al. (2015) found that the translation of English terms related to climate change into Inuktitut often flattened the meaning of these terms for Inuit. In particular, these translations tended to remove the social, political, and spiritual characteristics of natural phenomena in a manner that often depoliticized climate change for Inuit. For example, they explain how climate change has been translated to *silaup asijjiqpallianinga*, roughly meaning 'the environment's gradual and ongoing change. For many Inuit this term is merely a statement of the obvious – of course the Arctic environment is always changing – and omits any notion of

human causation. Cameron et al. (2015) argue that the term would need to be imbued with more ethical force in order to be useful and sensible to many Inuit. Rather than simply translate 'climate change' or 'human-induced climate change'[49], it makes more sense to use a term like *silaup asijjirluktauninga,* which roughly translates to mean the "unethical abuse of *sila*" (Cameron et al. 2015, 278). The authors also discuss how translations of resiliency tend to depoliticize climate change, since it conceptualizes resiliency as the survival of events that are inevitable and will pass by eventually. Politically, this sets climate change up as a natural process about which very little can be done. Under this discursive representation of climate change, Inuit should simply endure changes to their environment rather than attempt to politically intervene in the social and economic processes that are producing these changes. This means that the production of climate change knowledge in English, even when translated later into Inuktitut, uniquely discourages Inuit political and spiritual interventions in environmental discussions. The English language itself reinforces the reduction of the environment to an empirical reality, rather than the more seamless understanding of the environment that is fundamental to IQ. The hegemony of English thereby decreases the likelihood that Inuit will respond to digital discussions in a manner that highlights the full dimensions of IQ.

Third, it is much more difficult to express IQ in written form. Based on work with Kingulliit Productions, Rachael Petersen (2012a) argues that Inuit need high-bandwidth access in order to engage in audiovisual and multimedia expressions that are supportive of Inuit storytelling and experiential learning. This argument has been a driving force behind Kingulliit's digital experimentation and movie production. As Isuma co-founder Norman Cohn states:

49 This would also not make sense to many Inuit, since it is nonsensical that people could forcibly change the spirits and forces that compose sila. Climate change is not humans changing long-term weather patterns – it is a process by which humans enrage these spirits such that they choose to punish humans through changes to the weather.

> Any reasonably audiovisualized internet – that is, at least 5 Mb/s download speeds with 30G monthly caps for not more than $60 a month – allows Inuit to adapt online audio-video to the ancient art of Inuit storytelling, the informational spinal column of 4000 years of Inuit identity and knowledge. That level of ORAL media interactivity – speaking/filming in oral Inuktitut instead of email/Facebook in written English – also would support traditional Inuit values of consensus decision-making and working together to solve common problems. (Cohn, qtd by Petersen 2012a, np)

According to Cohn, technology formats like video are critical to IQ along multiple dimensions – they support the oral format of knowledge transmission common within Inuit culture and they support consensus-based decision-making. Video is also far superior to text in demonstrating skills and techniques, which means that they are closer to (if not perfectly capable of) enacting experiential knowledge transmission than other forms of digital representations.

In contrast, access only to low-bandwidth networks commits an epistemic violence against Inuit ways of knowing since it forces Inuit to engage in a text-based and representational form of knowledge transmission (Petersen 2012a). The transmission of IQ is not wholly possible within written communication, a reality described by elder Theo Ikummaq (2000). When asked whether his knowledge would help younger generations if it were written down, he responded:

> It can be written, but a lot of the information is going to be omitted, as a matter of fact, because it is not an exact science. It is sort of what they have learned over and over, and each person has progressed differently, so therefore what one person knows another person might say is wrong. And yet, they can get from point A to point B quite equally. So there is going to be conflicting information in that instruction, if it became written down. (IE478, 4)

For Ikummaq (2000) IQ is not only something that should be communicated orally, but it is also something that can only be acquired experientially. It should "not necessarily [be] introduced as written material, but with practice." (IE478, 4) He continues his explanation of what is lost when knowledge cannot be passed on through oral instruction within experiential scenarios:

> Inuktitut being an active language, alive, is constantly changing. An elder might be talking about navigation, but the youth doesn't understand everything the elder is saying. So now you have to keep in mind what the youth may be able to understand. So the language is been played down. Traditional knowledge doesn't work as equally then, because of that language barrier. So we have all these things playing in navigation, and we have to keep all those things in mind. So therefore navigation, you might even say, is changing. The methods of navigation. It's the same concept, same theory, but the language has changed because of the people that you have to accommodate, the youth. Where the language is at?, that's what you have to think about now. (IE478, 4)

Here Ikummaq is describing how elders need the vibrancy and dynamism of in-person, oral instruction to be able to pass along the depth of their knowledge. Inuit youth must be able to ask questions of the elders and to practice the skills that the elders are teaching. Learning is dynamic, interactive, embodied, and experiential. Written language (and even photographs and videos) is just not capable of this dynamic form of teaching. On the ICC site Marius Olsen similarly confirms that Inuit knowledge cannot be stored within documents, but must be passed on from one generation to another through activities out on the land. He says:

> Our knowledge is not in drawers or on papers. The fishers' and hunters' code will always be passed on, even if the next generation doesn't become full-time fishers or hunters, because the next generation will always be drawn to nature and they will remember what they have been taught by their old ones. (Olsen qtd. In ICC 2014, 51)

This quote demonstrates that knowledge transmission is not simply about sharing information – it is also a social, cultural, and even emotional activity that binds Inuit together with one another and with the land. This psychological component of IQ transmission is similarly expressed by Austin Ahmasuk, who says:

> The methods of hunting, probably most anybody could learn, but it takes a lot to develop that psyche for safety, develop the psyche to deal with the cold, the psyche to get out there early in the morning and hunt... There's many more aspects of hunting than just the

methods and means. (Ahmasuk qtd. In ICC 2014, 17)

This demonstrates how IQ is more than just an adoption of teachable methods, but is also the acquisition of a particular psyche that can only be obtained out on the land. There is no way for an Internet user to acquire this psyche from the comfort of their computer, since it requires physical and emotional struggle within the harsh conditions of the Arctic. Written language cannot capture these complex aspects of IQ, and its predominance online makes it structurally more difficult to fully express IQ within digital spaces. Even when IQ is being discussed, it is not being represented equally to how it would be within an experiential scenario out on the land.

Fourth, the prevalence of long and text-dense digital formats like PDFs within Inuit sites makes these sites less visible to international audiences because these formats have become less popular amongst those audiences. The Nielsen Norman Group, a digital consulting firm, argues that the inclusion of PDF documents in a website dramatically decreases the usability of that site because they are not optimized for current Internet navigation behavior or new browsers (Nielsen 2001). PDFs are not easy to quickly browse, which means that many southern audiences are less likely to engage them in a sustained manner. Given that 55% of visitors on a Web page spend fewer than 15 seconds actively engaging with a page (Haile 2014), it is unlikely that most readers will read to the end of a long PDF – or even wait for it to download within their browser. This is particularly problematic given that the very best examples of IQ that I found across the analyzed sites were found within very long PDFs. Due to their length PDF documents are particularly suited for including long transcripts and quotations from hunters and elders as they discuss environmental issues with one another. For example, a PDF document on the ICC (2014) site, titled “The Sea Ice Never Stops,” is particularly powerful in representing IQ since it includes many quotations from hunters and elders involved in the production of the document.

There is a strong emphasis on giving voice to the Inuit participants – the initiative that gave rise to the document claimed to be important precisely because "it gives voice to Inuit, the people who have lived in the Arctic for thousands of years" (ICC 2014). Some of these quotes point directly to the more intangible aspects of IQ, even if the participants did not feel that they were capable of fully representing these aspects in writing. In other words, they pointed to a gap, an unrepresentable form of knowledge, or an empty reference that 'IQ' was meant to point toward. Even though IQ is never fully presented[50], the long discussion between elders slowly begins to subtly paint a picture of the types of experiential processes that one might engage in to acquire IQ. Through this conversation one also begins to get an idea of the consensual politics that drive IQ-based knowledge production, since it is striking how polite and respectful the elders are with one another. Once again, though, it requires a very long document to represent these subtle aspects of knowledge transmission amongst IQ holders.

Even if Inuit do gain better access to other multimedia formats like video, some of these issues may not disappear. If IQ does require high degrees of sustained engagement, particularly when it is forced into a written format, then it may just be incompatible with the logic of quick Internet browsing and social media use that is increasingly widespread. The production of IQ-based videos may suffer from similar issues if they do not conform to this southern browsing behavior. In fact, many of the videos that I did find on the DID site included interesting IQ-oriented material, but also tended not to conform to Western norms of filmmaking. They were often quite long, were not scripted or edited in any substantial way, and did not conform to the action-packed or linear narratives that often define Western plots. Instead, these videos often include discussions with long pauses or sometimes no dialogue at all. Entire families are often involved in the videos, with elders demonstrating skills to children. Knowledge is very clearly

[50] And is often never even labeled as IQ!

framed within the personal context of the speaker, rather than as something that can be objectively passed to others. This is a very clear depiction of IQ, even though the material in the video may not be overtly labeled as such. Demonstrations of IQ are subtle but pervasive, meaning that they can be accessed but will probably be overlooked all but the most patient southern viewers.

Finally, reliance on less dynamic technologies like PDF documents prevents Inuit from making use of the digital practices that many southern organizations use to increase visibility with and buy-in from broader audiences. Many non-Inuit sites – including CNN, Fox, the Globe and Mail, Greenpeace, and the Sierra Club – incorporated multimedia ads and interactive social media applications directly in their websites. These ads serve as a source of revenue for the organizations. The social media applications increase user participation in the site and allow those same users to spread stories from the sites to other potential users. The Greenpeace site offers a perfect illustration of these digital practices. Upon entering the Greenpeace site the user is immediately greeted by a pop-up ad inviting donations to the organization. When I visited the site the ad included a photograph of a child along with the text 'Support Greenpeace today. We can't do it without you.' (Greenpeace 2016) Other ads across the site used a similar tactic – they framed themselves in terms of 'us' or 'we' to discursively incorporate site users directly into the activities, struggles, and successes of Greenpeace. The ads variously invite users to join the organization, to make financial donations, and even to 'donate' tweets. These donated tweets then help spread awareness of Greenpeace to new users – a tactic that seems to be effective given the very high levels of participation on the Greenpeace Twitter page. These ads are paired with pages that include relatively short articles and a large amount of multimedia. There were a few PDF documents on the site, but even these are online copies of magazines composed of relatively

short articles when compared to many of the Inuit PDFs. Many of the discussions across the Greenpeace site seem much shorter and shallower than those that occur across the Inuit sites. While this diminishes the amount of detailed information that a user might come away with, it also allows the user to quickly read many articles and share them – in visually compelling ways given the multimedia – through the built-in social media options. The breadth of technological options available to Greenpeace, as well as many of the other southern organizations, allows them to design visually appealing and interactive pages that encourage high levels of user interaction and allow users to gain and transmit key information quickly. This represents yet another way in which the material and economic realities of the Arctic constrain the ability of Inuit, relative to other digital media consumers and producers, to express their views to large digital audiences.

In summary, the high costs of Internet access and high levels of poverty in the Arctic produce complex and multi-layered constraints on the types of digital behaviors that Inuit can engage in online. The costs of digital data transmission encourage Inuit to produce and consume digital material in the form of written English, rather than in the form of multimedia. This format of exchange prevents some IQ-holders from accessing digital spaces, makes it more difficult to express IQ, and decreases the potential audience that might encounter the IQ that is expressed. My point is *not* that Inuit are not well included in the Internet, but that they should be – such a perspective ignores the possibility that Inuit may want to not be included (Cooke and Kothari 2001; Young and Gilmore 2014). Rather, my point is that these structural barriers to participation deny Inuit even the *choice* of whether they wish to express IQ within digital spaces. These barriers represent another striation of the Web which ensures that Inuit have relatively less capacity to express their IQ-based perspectives within conversations with qallunaat. This reduces

the chances of transformative encounters between Inuit and qallunaat, and reinforces the hegemony of southern epistemologies within the most visible spaces of the Internet.

### *6.3 Norms of Digital Engagement*

Digital political norms also deter Inuit from fully participating in environmental discussions. These norms encourage highly contentious and partisan discussions that many of my participants described as running counter to the consensus-based and respectful politics practiced by many Inuit. They also often found this style of discussion to be both a psychological and emotional deterrent to their participation. As a result some Iglulingmiut chose not to contest representations of the Arctic to which they objected, so as not to risk being engaged antagonistically. In this way antagonistic norms protect the representations of qallunaat from interrogation by Inuit, and reproduce epistemological hierarchies in the process.

The most contentious digital behavior often occurred in the most popular and visible sites, and particularly on the sites of news organizations like CNN, Fox, and the Globe and Mail. Following the journalistic norm of displaying all sides of a story, articles on these sites highlighted diverging views on environmental issues. CNN stories, for example, often included interesting, but often conflict-oriented, knowledge politics between government actors, scientists, business lobbyists, conservationists, and individuals. Notably, Inuit and other indigenous perspectives were often less common. This orientation toward partisan conflict was often amplified within social media discussions of these articles. On the Globe and Mail Facebook page, for example, most of the discussions of climate change quickly devolve into fighting. This is often instigated by individuals responding to climate change stories with denials of climate change. Users tend to tell one another that they are wrong about the facts, and then quickly resort to various ad hominem attacks. Attacks that I found included accusations that posts were

“environmentalist and climate change nonsense” (Colvin 2016) or “strawman tripe” that cause a user to lose “a few braincells” (Stirton 2017); that users were “liberal hypocrites” (Klechle 2016), were part of the “anti-science hordes” (Craig 2017), or had “their doctorates in right wing news BS” (Smith 2017); and much more. Political identities – such as being a liberal – are quite regularly invoked as an insult across the page.

These antagonistic tactics extended to the other news sites, and they were embraced by individuals from all political perspectives. The Facebook page for Fox News, for example, has many supporters of climate change science engaging in such behavior. Mhiller Ike Rodriguez (2016) responds to a discussion by stating: “People are really too fucking stupid to understand how climate change work [sic]... Y'all need to do some research about climate change. If climate change is [a] hoax then the fucking sun is purple.” Some of my past analyses of these websites also highlighted nationalist and racist language being used to discredit Inuit views on environmental matters, including representations of Inuit as primitive brutes intent on killing 'baby' seals (Young 2016). This language was less prevalent within the analysis that I did for this project. The cause for this may be the rise of terms of service that prohibit racism and hate speech, the low amount of attention paid toward Inuit in general, or the recent elimination of user comments on many of the sites. The latter trend, though, may have simply shifted this negative behavior from one platform to another – while users cannot comment on the news sites, they are encouraged to engage with the site via social media platforms. It is possible that some of this behavior has simply gone ‘underground’, in order to protect news organizations from legal and publicity problems.

Discussions on the environmentalist sites were similarly contentious, and were particularly acute within social media discussions. The Greenpeace Facebook page, for example,

contains very emotionally and ethically charged language concerning sealing. John Connell (2016) says that the practice "isn't actually sustainable, and it's also one of the most grievous acts of animal cruelty committed on earth and many are left to die on the ice skinned alive. […] But you know, hang on to your comforting lies dude. They aren't 'resources'; they're living, social animals." Later he goes on to argue that "There is no viewpoint from which it makes any sense. If you support it, you are literally not an environmentalist let alone a decent human being. Sorry." (John Connell 2016) This type of argumentation does not leave much room for respectful disagreement between these qallunaat and Inuit – these comments categorically denies any ethical value to an activity that is deeply important to Inuit. This discourse also invokes memories of the discourse that Greenpeace used in the 1970s to lobby against Canadian sealing – activism that destroyed the economies of many Inuit communities. Many of my participants continue to think poorly of Greenpeace due to this past political activity, even though Greenpeace has since apologized for the impact that it had on Inuit. The Sierra Club site, and even the IPCC site, contained similar types of behavior.

My Iglulingmiut participants widely identified this confrontational behavior as the thing they disliked the most about the Internet. I found that Inuit reacted to these digital practices in one of three ways – they avoided discussions altogether, they engaged others in a confrontational manner themselves, or they tried to engage others in an expressly polite manner. However, these different tactics tended to be available to different types of Inuit. My participants tended to disengage from contentious politics, and leave these more contentious politics to either public figures or Inuit organizations. As a result, the contentious aspects of Internet engagement most exclude Inuit with the least amount of experience in the south – and therefore the Inuit that are most exposed to the land-based practices that produce IQ.

Most of my participants tried to avoid public confrontations online. When asked whether or not the Internet could be used by Inuit to transmit their voices to the south, one confidential participant responded that Inuit should be able to do that but shouldn't feel compelled to do so. They indicated that if someone is accurately depicting Arctic life, then Inuit are generally willing and eager to support that information online. However, this participant said that they avoid situations in which Inuit are being misrepresented online. They said that, "when the story's being switched, like being twisted a bit, I tend to forget about it because it creates more controversy." (Confidential Participant 12C 2016) They prefer to ignore the situation rather than to increase the controversy. Another confidential participant indicated that they do not do Facebook because they are worried about people yelling at them on the site. They jokingly said that if they were to get Facebook and "if someone starts swearing at me on Facebook, I might get out and go over to them and start a fight." This type of attitude was confirmed by Peter, who felt strongly that Inuit knowledge should only be present online if people are respecting it. For Peter, when "there's a dirty word on it, it's not too good." My confidential participant continued to contextualize their feelings within the context of environmental politics, and specifically to their fears surrounding Greenpeace activism. They were concerned that their participation on Facebook might lead activists to criticize them. When asked to give an example of why it might be bad for Inuit to share knowledge via Facebook they said, "Well, if Greenpeace sees me killing that seal pup and eating it, they might want to kill me, and stuff like that." (Confidential Participant 13C 2016) In this quote the participant is recognizing that they hold a very different position in relation to the environment than Greenpeace, and they feel as though Greenpeace activists would prefer to kill Inuit than to accept this alternate relationship to the environment. My participants consciously tried to avoid such political confrontations with Inuit on the Internet, even if it meant leaving

southern misrepresentations of the Arctic uncontested.

In other instances Inuit do engage in confrontational politics themselves. However, this behavior tends to be restricted to very public figures or organizations and appears to be relatively rare. For instance, Francis felt that Inuit should not be as worried about sharing hunting pictures online anymore, since he feels that Inuit organizations are more prepared to defend Inuit against environmentalist organizations. He compared the antagonism of Greenpeace activists in the 1970s and 1980s to contemporary realities:

> I think we're a bit more prepared now. Like, there's... I think that just maybe there's, umm, seal hunting was the late 70s and 80s, and this was before the Internet. And, these activists have been around for longer than we do know of. And then they basically killed the seal hunt back in the 80s, whereas seal pelt used to be high, and then afterwards the seal market basically went down pretty low since... they're even comparing us with Newfoundland seal hunters whereas they're commercial, they do thousands and thousands of seals. Whereas in the North we're subsistence hunting, I don't think you're going to get... I don't know, I think there's no comparison. But, in today's society with Internet and with people more educated, I think it's safe now. That's my personal perception anyways. (Piugattuk 2016)

Even when qallunaat are not educated, Francis felt that it was worth it to engage those people online and teach them. In fact, he felt that Inuit organizations have already "been basically waging ongoing wars with these" types of people. He argued that organizations like ITK and ICC have been quite successful at achieving concessions from anti-sealing organizations, and that they will continue to defend Inuit interests both online and offline. Notably, though, Francis emphasized that Inuit still need to uphold a high level of integrity online, even when engaging in these forms of free expression. In his words: "Well, there's freedom of expression. Whereas, come on come on, you're expressing yourself to the whole world. Have at least a degree of integrity here."

I also found examples of a few Inuit artists, activists, and politicians expressly engaging in more antagonistic forms of politics to further Inuit causes. Within the context of sealing, throat singer Tanya Tagaq and filmmaker Alethea Arnaquq-Baril deserve special mention for their innovative uses of new media to engage anti-sealing campaigns. Tagaq has very vocally confronted a number of environmentalist organization via social media, and gained a lot of attention in 2014 when she joined the #sealfie movement by tweeting a photo of her daughter next to a recently killed seal. The photograph itself had been taken before the #sealfie movement had emerged online, and Tagaq has explained that the photograph was originally taken in a very respectful way:

> We went to an elders' camp near our community and my mother and I went to say hi to them, and one of the hunters there came back with the seal for everybody to eat and enjoy and use the skin, and everyone was really happy about it. My Mother took the picture, and I put my baby next to the seal, and everybody just thought it was the cutest thing in the world. Like it was a really sweet endearment because I honour my children immensely and I would never, ever, do anything to compromise that honour towards them. It was just showing how much I appreciated the seal for giving its life so we could be happy and eat. (Tagaq qtd in Dean 2014, np)

Nevertheless, the photograph quickly became detached from that social context, and was widely criticized as an example of a 'savage', 'sick', and 'mindless' Inuit attitude toward the world (Dean 2014). Tagaq has continued these interventions in what she views as colonial attitudes toward Inuit, and even had her Facebook account temporarily suspended in early 2017 after posting a seal fur photograph (The Canadian Press 2017). Madelaine Redfern, the current mayor of Iqaluit, has been a strong supporter of Tagaq throughout many of these events, and is an example of another Inuit activist that utilizes social media platforms like Twitter (Rohner 2014). After PeTA engaged in a public fight with Tagaq, Redfern (qtd in Rohner 2014) tweeted that the organization's "purported support for #Inuit #sealhunt is actually thinly cloaked or veiled

racism." During my stay in Igloolik I read many stories about Redfern's tweets regarding the sexual misconduct of Nunavut Member of Parliament Hunter Tootoo (Rohner 2016; Zerehei 2016). Throughout these tweets Redfern demonstrated a strong desire to engage in a feminist Inuit politics via Twitter. These vignettes offer examples of Inuit that are willing to be confrontational in their digital political tactics. In a sense, then, they are following in the footsteps of Inuit leaders like Peter Ittinuar and James Arvaluk, who adopted what they viewed as white politics to push for Inuit rights in the 1970s and 1980s (Cameron 2015). However, in every case these Inuit temper confrontation with clear references to Inuit values. Francis emphasizes the importance of integrity even while doing 'battle' online, Tagaq used a culturally respectful photo of her family to criticize the colonialism of anti-sealing campaigns, and Redfern engaged in a confrontational politics to defend other Inuit women.

In other instances there is even stronger evidence of Inuit urging that confrontational tactics be replaced with more polite and coalitional forms of dialogue. This was a very common discourse within many of the sites of Inuit organizations. As will be explored more fully in Chapter 8, many of the pages and articles on these sites very much emphasize the importance of respectful collaboration between Inuit and qallunaat. For example, one ICC and ITK joint press release, found on the ICC website, urges people to "reduce or avoid rhetoric, hype, and alarmist claims related to Polar Bear extinctions and overhunting" so that Arctic stakeholders can better respect and support one another (Gray 2009, np). I encountered this tactic far less commonly amongst individual Internet or social media users, but found it occasionally. Perhaps one of the most striking examples was a comment made by an Inuk within one of the Talk pages associated with the Polar Bear entry on Wikipedia. One Wikipedia, Rocksong (2006), had just commented on how their daughter had come home from school with an article that was anti-polar-bear

hunting, and that they were surprised to find little information about it on Wikipedia. An Inuk responded with an offer to privately help Rocksong and their daughter to understand hunting issues in the Arctic. They said: "Hello I am happy to wade into this issue with you and your daughter. I am a Inuit Hunter I have also been on a few sportshunts. do [sic] you have any specific questions I will be happy to answer any questions." (Anonymous, ND) This posting exemplifies several tendencies that I noticed more broadly within Inuit digital engagements – a desire to share knowledge of the Arctic, a happiness to help others (especially when children are involved), and a desire to deal with issues privately rather than in the full view of the public Internet. It is not clear whether Rocksong ever took this user up on their offer.

Arnaquq-Baril offers another example of Inuit using new media to combat campaigns against sealing. She recently produced the film *Angry Inuk,* which documents the struggles of Inuk Aaju Peter against anti-sealing campaigns. In producing the film Arnaquq-Baril came to realize that she also is an angry Inuk, but that she has not always been able to express this anger due to the ways in which Inuit culture emphasizes politeness rather than anger and outspokenness (CBC News 2016c). She recognizes how difficult it can be to engage social media in a confrontational manner:

> Aaju really taught me to notice this about our culture—as Inuit we tend to try to not be too angry, and if something is upsetting or not fair or not right, we try to stay calm about it and talk about it reasonably. So of course sometimes inside you feel anger, but we tend to express it much more quietly and not as loud and angry as we see on TV with animal rights protests. (Arnaquq-Baril 2016)

As a result Arnaquq-Baril says she spends a lot of time on Facebook and Twitter trying to clear up misinformation. She argues that Inuit can battle confrontational politics with their own humor and respect, rather than engaging in the same vicious politics of animal rights groups:

> Animal rights groups who have been using cynical tactics for

> decades are scrambling. While the staff of these groups do not outwardly attack Inuit seal hunting, their members can be vicious, and Inuit are not used to such outward and intense confrontation. While the group of Inuit are ready for battle against misinformation and cynical tactics, they do their best to remain relentlessly respectful, embodying the Inuit attitude of conflict resolution through reasonable discussion, and a healthy dose of humour. (Unikkaat Studios Inc 2010)

Based on this analysis, I argue that the conflictual nature of many web spaces uniquely disadvantages Inuit. In many cases these confrontational spaces may deter Inuit from engaging in discussions altogether. In other instances they have to engage in a difficult discursive and emotional balance of both responding to antagonists and remaining faithful to Inuit norms of respect and consensus-building. In either case the norms surrounding digital engagement, and the widespread prevalence of contentious forms of politics, make it more difficult for Inuit to fully participate in online discussions of the environment. This protects qallunaat representations of the Arctic, rooted in southern epistemologies, from interrogation by Inuit epistemologies.

### *6.4 Digital Stratifications, or the Confinement of IQ to Less Visible Spaces*

Finally, a highly reductive and segmented approach to discussing the Arctic has been normalized across the most visible spaces of the Web, making it difficult for Inuit to engage from the more interconnected and seamless perspectives of IQ. Tester and Irniq (2008) describe IQ as seamless because it does not contain divisions between spiritual, empirical, or socio-cultural forms of knowledge. Rather, it integrates these different types perspectives on the world in a manner that closely unites knowledge, ethics, and material practice. In contrast, southern approaches to knowledge production compartmentalize normative values away from scientific knowledge, and are generally more reductive in nature. In Section 6.2 I described how translations of English into Inuktitut normalize this compartmentalized approach to the environment, since they often employ Inuktitut words that are devoid of the political and

spiritual connotations that an Inuktitut speaker normally use. In this section I examine how the selection of topics of discussion produces similar effects. I found that there was a deep division in how content is organized and highlighted across the sites that I analyzed. Sites produced by southern organizations were more likely to focus on narrow topics and to not produce individual pages that mixed many of these topics. In contrast Inuit organizations produced material that took a much more seamless approach to representing the Arctic – they focused on the interconnections between environmental, economic, social, and cultural aspects of life in the Arctic. These divisions in content incentivize Inuit to participate most often within sites produced by Inuit organizations, rather than on sites produced by qallunaat. This produces a deep stratification of digital content, in which IQ remains compartmentalized within less visible, Arctic-produced sites and Western science is dispersed across much more visible southern sites. This decreases the likelihood of interactions between the two sets of epistemological systems while also reproducing the global hegemony of Western science.

I found that sites produced in the Arctic, except for Wikipedia[51], focused heavily on a theme of *either* environmental destruction (in a very biological and material sense) *or* economic consumption related to the Arctic. I discovered these topical foci through the computational analysis aspects of my analysis, which used topic modelling to produce 'themes,' or lists of words that co-occurred across the pages of each of the analyzed Websites. I then coded each of these themes with emic codes that identified the general topic that unified all the words listed within the theme. The emic codes that I used included Activism, Community Life, Development

[51] Wikipedia's themes were strongly oriented around the architecture of the site, and primarily around the social nature of the site. Many of the themes are simply listings of usernames of people that have contributed to Wikipedia articles, while other themes are focused on the citations provided for the Wikipedia pages. These themes hint at the ways in which Wikipedia encourages particular forms of dialogue citations and formatting – all of which will be discussed in Chapter 7. Wikipedia is less relevant for the argument made in this chapter, and so it has been omitted from this discussion.

and Economy, Education, Environment, Geography, Governance, Health, History, Hunting, Indigenous Issues, Intensities, Internet, Language, and People. Each of these topics was further coded to reveal various subtopics. In analyzing the distribution of themes across each of the sites, I found that several sites were composed almost entirely of themes that had been coded Environment, while another cluster of sites included themes with codes related to some form of consumption. This included themes related to the economic development of the Arctic, but also themes related to the consumption of various representations – from news to zoo exhibits to vacations - of the Arctic.

The four sites that focused primarily on the environment included those of Environment and Climate Change Canada (ECCC), the Intergovernmental Panel on Climate Change (ICCC), the Sierra Club, and Greenpeace (Figure 6.1). These sites are, notably, produced by organizations based in the south. These sites showed the least diversity in their representations of the Arctic, focusing almost entirely on material and biological changes occurring within the region. Across the four sites themes focused narrowly on issues such as conservation, climate change, pollution and environmental contaminants, natural resource extraction, and environmental management. While there is some discussion of governance and (activist) politics that might influence these material processes, discussions of Inuit communities and the social effects of environmental change are not very prevalent. These sites paint a strong picture of the Arctic as a set of empirical and material realities.


*Figure 6.1 Sites that emphasize environmental issues.*

Another cluster of focuses on the Arctic as a material or representational object that can be consumed for economic and educational benefits (Figure 6.2). These consumptive-oriented sites included those of CNN, Fox News, the Globe and Mail, Nunatsiaq News, and the Government of Nunavut. This cluster of sites is once again dominated by southern organizations, although both Nunatsiaq News and the Government of Nunavut are in Nunavut. Of these, the Government of Nunavut site was most explicitly focused on material economic consumption, primarily through discussions of development projects in the Nunavut region or discussions of

social and economic services provided by the government. Common subtopics included general economic well-being, job provision and training, energy and natural resource extraction, social services, and housing availability. The second major topic discussed across this site was the Environment, with a strong focus on animal population dynamics and management – topics that go hand-in-hand with sustainable development.

In contrast the news sites – CNN, Fox News, the Globe and Mail, and Nunatsiaq News – treat the Arctic as an opportunity to sell users education and experiences. At first my analysis of these sites seemed to reveal a lot of noise – themes that did not make sense or did not appear related to the Arctic. Further analysis revealed that these results were the result of the high inclusion of ads and links to other news stories within the pages I was analyzing. I coded these themes with the codes Internet or Education. In some cases – especially on the Fox News site – ads seemed to overwhelm the actual content on the page. These ads and links ensure that users continue to browse within these news sites, and provide insights into the business models of the sites. The news sites also included many articles that focused on consumer experiences with the Arctic environment in zoos, museums, and through expeditions or vacations. For example, the top two topics for CNN were Community Life and News. The Community Life themes were of the subtopic Travel/Recreation (incl. parks, tourism, and zoos), and focused most often on instances where travel writers saw or photographed animals on a trip. Interacting with the Arctic environment within the safe spaces of a zoo or luxury vacation produces a much different – and much narrower – view of the Arctic than that held by the Inuit that live there. Zoo visitors, for instance, get little appreciation for the bitter cold and danger of traveling on the ice, the spiritual and economic relationship that Inuit have formed with the environment, or even the danger that animals such as the polar bear pose to communities. These news sites do include other themes,

including environmental, governance, and community life. However, they still do not take the diversity of perspectives on the Arctic as found within the sites of Inuit organizations.

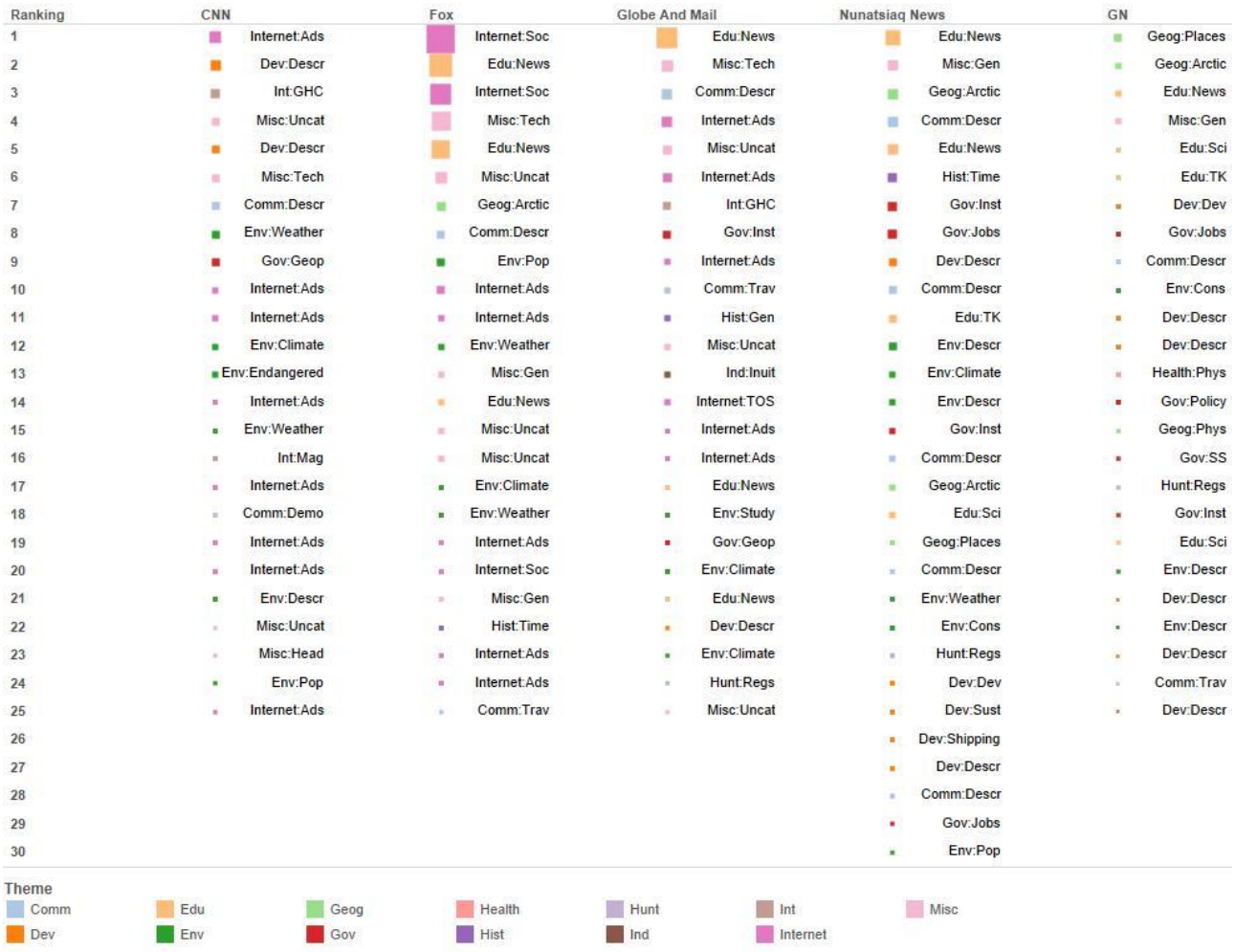


*Figure 6.2 Sites that emphasize consumption*

Finally, the sites of the Inuit Circumpolar Council (ICC), Inuit Tapiriit Kanatami (ITK), Nunavut Tunngavik Incorporated (NTI), and Digital Indigenous Democracy (DID) – all Inuit organizations – framed their representation of the environment within much more diverse discussions of community life, indigenous issues and politics, culture, and livelihoods (Figure 6.3). Across these pages articles seamlessly blend discussions of community life, hunting,

governance, geopolitics, indigenous rights, health, and the environment. Discussions of hunting were often a converging point for these different topics, since the activity blends concerns for the environment, Inuit culture and community practice, health and livelihoods, and (geo)political fights over hunting regulations. These pages paint a much more multi-faceted picture of what life in the Arctic looks like, and the complexity of social and material impacts produced by environmental change. The sites all also clearly foreground Inuit relationships to the environment, and aspect that is largely absent across the non-Inuit sites.


*Figure 6.3 Sites that emphasize indigenous issues and Arctic community life.*

This analysis describes deep divisions in approaches to representing the Arctic, and

reveals that this division largely falls between Inuit organizations and southern organizations[52]. I further found that the normalization of reductionist and compartmentalized approaches to describing the Arctic environment extend beyond the handful of sites that I analyzed. In addition to analyzing the content of these sites, I performed the same analysis on the results of Google searches about the Arctic. The results of these searches were strongly biased toward the same consumptive orientation toward the Arctic environment as was found across the news and GN sites. The primary topics across the Google search results included community (travel and photographs), education (news), environment (description of the Arctic environment and discussions of conservation), and internet (e-commerce and, to a lesser extent, social media). In contrast, the indigenous themes were not well-represented across the search results.

This means that the algorithmic design of search engines like Google highlight consumptive sites above other types of sites. As a result the average Internet user that engages in a generally-framed search for information on the Arctic environment will be directed primarily toward representations of the Arctic as an object for consumption. They will also encounter pages that discuss the empirical realities of the Arctic and related conservation issues, but they are unlikely to find indigenous issues well-represented within the pages presented to them. This reinforces an epistemological hierarchy, in that it amplifies the visibility of representations of the Arctic based in compartmentalized and reductionist, southern ways of thinking.

In fact, my analysis also revealed a strong relationship between the topics discussed within a Website and the epistemological systems invoked within those discussions. I found that sites that discussed issues of indigeneity – which are also primarily the sites that take a more

[52] The Government of Nunavut and Nunatsiaq News sites both disrupt this dichotomy to a degree, since they are based in the Arctic but do not align with the other Inuit organizations. These organizations, though, are strongly modeled after southern institutions – the Government of Nunavut after democratic bureaucracies and Nunatsiaq News after southern news agencies. This may explain some of the differences between them and Inuit organizations like ITK.

seamless view of the Arctic – are far more likely to mention IQ in some way. I used an etic coding scheme to determine whether each of the themes produced through topic modelling discussed issues of indigeneity, IQ, or Western science. I found that sites tended to include discussions of *either* IQ *or* Western science, but generally not both (Figure 6.4). Additionally, the sites that only talk about Western science tend to be the sites that do not discuss indigenous issues more broadly. This means that Internet users will not be exposed to indigenous perspectives unless they are explicitly searching for websites that focus on indigenous issues. Furthermore, while sites tended not to include high levels of discussions of both types of knowledge, sites that include discussion of indigenous issues tended to be more likely to include some mention of both knowledge systems. In contrast, sites that do not focus on indigenous issues tend not to include any discussion of IQ at all. Only the indigenous sites that provide any sort of balanced discussion of the various forms of knowledge that are leveraged to understand the Arctic environment. This is clear evidence of stratification and the normalization of Western knowledge – sites that focus on Western science include no evidence of other ways of knowing, while sites that highlight IQ must always relate that knowledge to Western science.

| Site | Indigeneity | IQ | QQ |
|---|---|---|---|
| Arctic Council | 15 | 0 | 5 |
| DID | 15 | 11 | 2 |
| ICC | 23 | 5 | 9 |
| ITK | 27 | 11 | 1 |
| NTI | 24 | 3 | 3 |
| Nunatsiaq News | 15 | 3 | 5 |
| | | | |
| Site | Indigeneity | IQ | QQ |
| CNN | 1 | 0 | 9 |
| Environment Canada | 2 | 1 | 20 |
| Fox | 2 | 0 | 8 |
| Globe and Mail | 10 | 0 | 6 |
| Google | 3 | 0 | 17 |
| Greenpeace | 2 | 0 | 8 |
| IPCC | 1 | 0 | 34 |
| Sierra Club | 0 | 0 | 3 |
| Wikipedia | 7 | 0 | 13 |
| GN | 11 | 4 | 15 |

*Figure 6.4 The prevalence of themes that include reference to issues of indigeneity, Inuit Qaujimaningit (IQ), and Qallunaat Qaujimaningit/Western science (QQ). The numbers represent the percentage of themes associated with the site that include words coded as indigeneity, IQ, or QQ. The sites are grouped by how prevalently they discuss indigenous issues – the top group of sites mention indigeneity in at least 15% of their themes, while the bottom group mentions indigeneneity in less than 15% of their themes.*

Evidence of the stratification of the Web – and the exclusion of IQ and Inuit from the most visible spaces of the Web – extended to social media platforms. Many of the sites that had the largest social media footprints were also the sites that mentioned the Arctic the very least – and almost never mentioned Inuit. Fox News and CNN, for example, are prolific participants on many social media platforms, have huge numbers of followers, and get a lot of responses from others based on their social media participation. When I examined the Fox News Facebook page they had over 12 million followers and had over 2 million Facebook users actively talking about

their page. Many of their posts tended to get thousands of 'likes', hundreds of shares, and hundreds to thousands of comments. Their Twitter account had over nine million followers. CNN's social media presence was even larger, with over 21 million followers of their primary Facebook page and over 24 million followers of their primary Twitter account. Yet, none of these platforms contained many discussions of the Arctic or Inuit, and no discussions of IQ. For instance, a search of the @CNN twitter account only revealed 27 tweets that contained the word 'Arctic', going all the way back to 1 March 2007. These tweets included discussions of geopolitics, art, ice breakers, conservation, science, oil drilling, climate change, tourism, weather, and trapped whales... but no mention of Inuit. A similar search for the words 'Inuit' and 'Inuk' revealed no tweets, and a search for the word 'aboriginal' only resulted in a single tweet talking about aboriginal art. In contrast the social media platforms associated with Inuit organizations are characterized by low levels of activity, few followers, and low levels of active participation by those followers. For example, the ICC Facebook page has only a little under 1600 followers, and their posts get very few re-tweets, shares, or comments. The page does include mentions of indigenous knowledge, contextualized to discussions of climate change and hunting. These are not usually the more popular posts, though – the posts that elicit the most participation from followers are more likely the ones that wish people happy holidays or include cute images with uplifting messages. The other Inuit organizations have similar levels of participation – the NTI Facebook page has fewer than 700 followers, the ITK page has just under 4000 followers, and the DID page has under 3000 followers. These public social media do not produce a large space in which IQ is represented to the broader Web.

The stratification of digital content led many of my participants to express the feeling that southern sites are inaccessible to them. They felt that qallunaat are be interested in Inuit

perspectives given the narrow focus of digital material produced in the south, and also that southern sites were not as relevant to them because they did not focus on the complex issues that affected their daily lives. A vast majority of my participants indicated that they mostly interacted either with other Iglulingmiut when they were online or with members of other communities in Nunavut. Isaiah, for example, indicated that he would sometimes get "crazy friend requests" on Facebook from "people from all over the world," but that he would deny those friend requests because he did not know who those people were or why they wanted to friend him. Instead, he indicated that he likes his "friends list to be from my community of Igloolik and Rankin Inlet and Pond Inlet... a majority of those." (Patterk 2016) When participants did have friends from the south, they tended to be people they met (in-person) in the Arctic. In other words, they tended to be people that understood, from an embodied perspective, the realities of Arctic life. For instance, when I asked whether they had many friends from the south, many immediately talked about family members that had to move south. For example, Cindy indicated that she uses a combination of email, Facebook messenger, and Facetime to keep in touch with friends and family that have moved down south. She has also friended southern-based qallunaat that she used to work with in Igloolik, but emphasized that she will not "accept […] people who add me." Here she was making a distinction between people that she met in person and then later friends online, and people that she first encounters online.

There were some exceptions to these tendencies. Cindy, for instance, had recently unfriended many of the people that she knew in Igloolik, because she felt that they were too closely surveilling her activities through Facebook. Her friends were mostly from other Nunavut communities. Micah also indicated that she accepted friend requests from southerners that she did not previously meet in person. She was particularly eager to share Inuit culture with these

people:

> I have a lot of non-Inuit Facebook friends. They ask me about my culture or if they want a tatoo and they want me to translate it, you know, stuff like that. The other day a lady that I don't even know asked to be friends, and then she wanted me to translate some word so that she could put it on her tattoo in Inuktitut, but I didn't have syllabics on my computer so I only gave her Roman orthography. She wanted translated humble, the term humble translated. (Arreak 2016)

Unfortunately, though, she believed that there were serious limitations to how effective this knowledge sharing could be. She believed that not enough qallunaat are really interested in Arctic issues and won't seek out information from Inuit. As she puts it:

> We can learn more from them through the Internet now than before. Not just through school. So, we're able to access information worldwide, so that's good, that's a positive thing. But, people have choices. They may not want to learn about the North, so they'll probably... [laughter]... won't. But, for those that do, yeah, it's a good tool to find out and orientate yourself about areas that you're going to visit. Like, I'm sure you did the same through the Internet to find out about Igloolik. (Arreak 2016)

Again, she is expressing the belief that qallunaat tend not to care about Arctic life or about Inuit culture. This is especially true if those qallunaat have never been to the Arctic themselves. By ending the conversation with a reference to me, she once again produces a connection between digital interest in the Arctic and physical presence in the Arctic – she intimates that I might have looked up information about Igloolik primarily because I was planning to visit the community in person.

The most popular sites used by participants were sites that focused quite exclusively on Igloolik or Nunavut, and seamlessly represented the complex nature of Arctic life. The sites discussed most often by participants were the Facebook groups Igloolik Sell/Swap and Nunavut Hunting Stories of the Day. Igloolik Sell/Swap is a Facebook group set up to allow Iglulingmiut

to buy, sell, or trade items. Abraham describes the group as following:

> They sell some stuff of their own and put it on Igloolik Sell-Swap and people can log into their Facebook and watch the, uhh, what everyone is selling on Igloolik Sell-Swap so you can find stuff that's uhh being sold on the Igloolik Sell-Swap. So you can find stuff like a cellphone or an iPod or a bunch of stuff they're selling. (Ivalu 2016)

This group was easily the most mentioned and popular Web page mentioned by participants and by people in the community in general – nearly everyone was actively watching the page and ready to talk about things that they had recently seen on the page[53]. In addition to allowing for the direct buying/selling of items, participants indicated that Sell/Swap was sometimes often used to share meat with community members. The group was also used to disseminate general community information, given how popular the page is.[54] While people from other Nunavut communities sometimes participate in the group, most of the activity is highly specific to Igloolik. Moreover, the group is closed, meaning that you have to apply for membership within the group. This ensures that not anyone can participate in conversations on the page.

Nunavut Hunting Stories of the Day is a group set up to allow Inuit to share stories of their recent hunting trips with one another. The site has been wildly popular, and has given rise to many other hunting group pages. Many participants discussed how much they enjoyed visiting the page to see pictures of hunting trips, to keep track of hunting occurring in the community, or even to learn about hunting techniques used in other communities. Francis explained that he has learned practical things from the site – such as how to fix new types of snowmobiles – but that the site also serves as an important site for cross-community exchanges of knowledge:

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53 Despite its popularity, the site was also sometimes controversial. One confidential participant indicated that the site was sometimes used to facilitate the sale of stolen items. Johnny told me that the site is also regularly used to sell or auction off items at exorbitantly high prices – the auctioning of soda, in particular, was a culprit.

54 Other Facebook groups, such as Iglulingmiun, are also used to disseminate community announcements. Cindy indicated that she now gets more information from Facebook groups than she does from the radio, which is significant given the historical popularity of the radio in Igloolik.

> Yeah, it's basically harvesting techniques or how to prepare meat. Like, in Igloolik here we hunt walrus year round. So, compared to other regions we know walrus, pretty much how to hunt it, how to prepare it, how to age best. So, it's our expertise. If you go to Keewatin [Kivalliq] they've been hunting caribou, so they know the best ways to prepare caribou. So, we learn from them, we learn from eachother. It's good. Ii. (Piugattuk 2016)

The complexity, usefulness, and accessibility of this page differ dramatically from Francis's description of southern sites that discuss environmental issues. When asked whether the Internet can be used to influence southern views on environmental policy, Francis indicated that:

> Moreso by specialists than by local people. Like, these scientific journals are starting to come online now. […] And so it is beginning to be utilized, but by mainstream society not so much. Cause these papers are dry and you have to be interested in order to basically grasp it. And the terminology used is sometimes over your head kinds of things. It's only if it's in laymans terms and if it's of interest to you then perhaps. But, by far it's bypassed mainstream society. (Piugattuk 2016)

Francis is describing how the technical focus of scientific sites is preventing local Inuit from engaging in discussions of environmental management – despite the fact that these same Inuit have long participated in forms of environmental management related to hunting. The narrow focus of these sites, rooted in southern technical epistemologies, thereby preclude Inuit engagement whereas the Nunavut Hunting Stories page allows them to discuss very similar issues from a more locally resonant frame.

This Hunting Stories group started out as a public page, but membership was quickly restricted because animal rights activists began commenting on the page about hunting (Castleton ND; Dawson 2013; Worden 2013). Now membership is carefully curated to ensure that the page remains a safe space for the posting of pictures and stories and the celebration of Inuit culture, rather than a contentious political zone for debate over the ethics of hunting. Even with this restriction in place, the group takes precautions to minimize the chances that the group

will encourage controversy. According to Francis:

> Umm, the Hunting Stories one is quite interesting because there's a blurb in the beginning there from the person who operates it. So, there's some, the very fears of whoever might be anti-hunting, so they basically made it not to post pictures that are too graphic. (Piugattuk 2016)

The exclusivity of the group increases the likelihood that participants will be Nunavummiut that actively participate in hunting, and that either have evidence of that hunting on their own Facebook pages or personally know someone that is already a member of the group. These dynamics, in addition to the narrow focus on issues that pertain to hunting and life in the Arctic, ensure that the stories shared within the group are not widely disseminated to the south. Of course, participants mentioned many other Facebook groups and Web pages, and they often also download media from the south. Nevertheless, an interest in sites that are specific to Nunavut remain a strong theme. Zach summarizes this tendency nicely, in response to my question about his participation in Facebook groups:

> Yeah, yeah. I go to... yeah, I have a few groups that I just check on, just to see. But, I'm trying to only communicate with what's up here. Like, there's an alliance group that's down South that got me somehow. Not interesting. Just don't... I may take a look at it, but it's got nothing to do with you so you leave it. You just communicate what's up here. […] Yeah. Yes. Yes. Who's selling that, who's selling this, what's happening in the community. And then we started to find out that each community has these... what they call... sweatshops... people sell things on their own... (Kunuk 2016)

These discussions reveal that Inuit discussions and perspectives are often highly concentrated within community- or regionally-oriented social media groups or Web pages, and relatively unlikely to reach southern audiences. Not only would southerners need to specifically seek out information about Igloolik to find these perspectives, but they would also often need special permission to access these digital spaces. In some instances, they are unlikely to receive this

permission unless they have met Iglulingmiut in person. This once again diminishes the likelihood of transformative digital encounters between Inuit and qallunaat.

### *6.5 Conclusion*

In this chapter I examined material conditions and digital norms that make Internet access relatively more difficult for IQ holders than for other users. The high cost of Internet access in the Arctic encourages Inuit to consume and produce digital material in the form of written English rather than multimedia, which uniquely hinders their ability to express important aspects of IQ. These economic constraints further encourage Inuit to encode their knowledge within older and less data-intensive digital formats, which offer them fewer tools and capabilities for spreading their perspectives to wider audiences. Inuit feel further constrained by the norms of engagement built into many digital spaces, which stress antagonistic and partisan interactions largely rooted in Western political culture. These norms, which clash heavily with Inuit views of respectful and consensual politics, make it more difficult for Inuit to fully participate within digital spaces, and help to protect southern epistemological views from IQ-based critique. Finally, the most globally visible spaces of the Web represent the Arctic in a highly reductive and segmented approach. These reductive norms make it more difficult for Inuit to engage with those spaces from the more seamless perspective IQ. This has produced structural conditions in which IQ remains primarily relegated to less visible sites that are based in the Arctic. This reinforces a hierarchy in which Western science remains a global epistemological system and IQ remains confined to specialized Inuit spaces. Taken together these digital conditions and practices reduce the ability of Inuit to even make choices as to whether they would like to transmit their IQ-based perspectives to broader digital audiences. This represents a quantitative constraint on the capacity of Inuit to use digital infrastructure to engage in transformative

encounters with qallunaat, since it quantitatively decreases the number of spaces and users to which IQ-holders have access. These exclusions from digital politics help to solidify the power of southern epistemologies. However, these conditions have not entirely excluded IQ from digital spaces – Inuit organizations have consciously and successfully presented IQ-based arguments online. Unfortunately, though, the marginalization of IQ within digital spaces does not end with exclusion – more subtle knowledge politics are also occurring within digital spaces, that ensure that, when IQ emerges, it remains subordinate to Western science. In the next chapter I examine the digital practices and norms that qualitatively transform IQ to further reinforce the hegemony of southern epistemologies.

## 7. The Digital Arctic: The Flattening of Digital IQ

The language used to define and promote IQ often serves to move IQ away from its cosmological implications and define it as a tool useful for filling gaps in scientific knowledge. […] Inuit operating with a seamless definition of IQ are […] confronted with contemporary social, economic, and political realities that challenge and may limit the use of IQ in the management and development of Nunavut. -Frank Tester and Peter Irniq, "Inuit Qaujimajatuqangit: Social History, Politics and the Practice of Resistance"

### *7.1 Introduction*

In this chapter I shift to a discussion of how *Inuit Qaujimaningit* (IQ) is, at times, selectively included within digital spaces through marginalizing transformations. Although Chapters 5 and 6 describe sets of digital processes that differentially exclude IQ from digital spaces, they have not wholly eliminated Inuit knowledge. This final set of processes ensures that IQ remains subordinate to Western knowledge even when it does emerge on the Web. I argue that digital knowledge politics have produced a hierarchy in which IQ is transformed to fit within Western scientific frameworks. This process allows southern systems of thought to control the overall epistemological frame through which the Arctic environment, and even Inuit thought and observations, is understood by digital audiences. These processes strongly stratify the Web to deny the possibility of transformative encounters between Inuit and qallunaat, since they encourage qallunaat to pre-frame encounters through a southern lens.

I examine three interrelated sets of transformations that work together to flatten IQ and subordinate it to Western science. First, in Section 7.2 I examine how digital transformations of the Arctic make IQ seem irrelevant to ongoing discussions of the environment. Digital representations of the Arctic erase Inuit from the landscape and evacuate the environment of its social and normative dimensions. By depicting the environment as a barren set of biological materialities, these representations diminish the power of IQ's ability to engage with the normative and social aspects of environmental change. Second, Section 7.3 describes how

linking, quoting, and citation styles implicitly devalue IQ as compared to Western science. These aspects of the Web normalize Western science as a globally important epistemological system even as they transform IQ to be anecdotal. Finally, Section 7.4 examines how descriptions of IQ across the Web flatten its seamless nature, and instead represent it as only a form of empirical data. By flattening IQ to be a form of scientific data, these knowledge politics make it easy to fold IQ into Western scientific frameworks. This ensures that IQ will always be interpreted through and subordinate to southern logics, and, in the process, forecloses the possibility of transformative digital encounters with Inuit thinking.

*7.2 Transformations of the Arctic Environment*

Digital representations of the Arctic regularly employ imagery that erases Inuit from the landscape, and also diminishes the social and normative implications of environmental change for Inuit. In the process these representations diminish the importance of IQ as a system that is uniquely capable of offering more-than-empirical analyses of this Arctic change. This diminishes the epistemological differences between Western science and IQ while simultaneously making moot the incapacity of Western science to analyze the social dimensions of environmental change. This diminishes the relative importance of IQ as compared to Western science.

Many sites represent the Arctic as an empty, natural space. CNN, Fox, and the Globe and Mail all describe the Arctic as a destination for travel, and they often also include highly romanticized descriptions of the region as something to visit, see, and explore. It is a purely natural and rugged space for the adventurous. Many of the CNN travel accounts included a large number of quotes from individuals that work for travel companies, and they also include links to those travel companies. These representations transform the Arctic from a place in which people *live* to a place in which (often wealthy) people *visit*. The Arctic becomes a purely material

landscape that can be viewed by tourists and must be understood via empirical science.

This naturalization of the Arctic invisibilizes the relationship between environmental change and structural inequality. If one is thinking about the Arctic as a site for an adventure with a well-equipped tourism company, then it becomes much more difficult to think about the dangers that Inuit face in the Arctic on an everyday basis. These travel representations rarely discuss the dangers of frostbite, falling through the ice, or being attacked by polar bears – likely because these dangers are highly minimized for tourists. However, they are very real dangers for many Inuit, among others. The last danger, that of polar bears attacking people, is particularly illustrative of the gap between digital representations of the Arctic environment and the lived realities of the Arctic for Inuit. While I was in Igloolik, both Iglulingmiut and visiting scientists regularly discussed the dangers of bears. Yet most online narratives describe them as majestic and beautiful creatures while omitting any discussion of how dangerous they are. This representation is produced within travel narratives, through discussions of polar bears at zoos, and through representations of polar bears as charismatic symbols within environmental activism.

Greenpeace campaign pages, in particular, utilized Arctic animals to further their own political goals. These pages often represented polar bears as political agents ready to work with people to solve climate change. Photos depict Greenpeace activists dressed up in polar bear costumes and interacting with people in large cities. The polar bears are often depicted as being somewhat forlorn, with frowns and down turned faces, because they are feeling the effects of climate change. People are often very close to these bears, and sometimes even pet them or pose for photographs with them. This represents bears as something that one can look at up close, pet, and interact with. This certainly isn't the experience of most Inuit – if a polar bear were to enter a

city and get that close to people, it would inspire widespread terror. Greenpeace has a long history of representing seal pups as innocent victims of sealing to accomplish a similar set of politics. The organization produces photographs of seal pups that are meant to look cute, and then describes these as 'babies'. These photographs, along with photos of many other anthropomorphized young animals, were particularly prevalent across Greenpeace's and Sierra Club's social media platforms. Sierra Club (2015), for example, tweeted one set of "baby Arctic animals" was posted in "celebration of Shell ending its Arctic drilling" for "your #MondayMotivation". Arnaquq-Baril makes a strong criticism of these representations of Arctic animals in her film *Angry Inuk*, talking about how seal stuffed animals were used to influence EU votes to ban the sale of seal products. In this case the emotional representation of *animals* was used to support the testimony of Western scientists – if it is animals that matter, then the most relevant knowledge is that produced by an epistemological system most focused on describing material and biological processes affecting animals.

These representations of the Arctic produce the impression that qallunaat care more about the care of animals living in the Arctic than for the people living there. This diminishes the importance of an epistemological system, such as IQ, that prioritizes knowing about the interrelationships between Inuit and the environment. One CNN article (Sutter 2014), for example, explored the possibility of airdropping food to polar bears to overcome some of the dangers they face from climate change. One of the users criticized the page for wanting to feed polar bears instead of people starving in *other parts of the world*. No mention whatsoever was made, in the article or the user comments, about the Inuit that are currently face staggering food costs in the Arctic (Young 2016). This gives the strong perception that only polar bears matter in the Arctic, and that food access issues only matter for people outside of the Arctic. One of my

participants mentioned that these types of representations bother them about the Internet. When asked whether there are incompatibilities between discussions they see online and Inuit values, they said that they did. When asked to elaborate, they said:

> The way Inuit live and, umm, how hard it is to survive up in the North. Umm, when it's being documented, it kind of switches the story. […] Like... it's really hard to try and survive out on the land. Without any stores nearby, and, umm, we go through a hard time to get the catch. (Confidential Participant 12C 2016)

When asked how the story is being switched, they responded that "the animals are being loved more than the people." The ICC site even includes some arguments against these types of representations. One page offers a cautionary message directed at those that view "the Arctic as an empty wilderness or an open frontier where they have complete license to assert their own interests." (Eegeesiak 2014, 1) The page points out that the Arctic is not empty, but is the home of the Inuit. While the Inuit may be willing to share the Arctic with visitors, they "are not willing to make it a protected area, of no touch, to satiate the consciences and ease the burden on action from those in the south – we will not support actions from a far [sic] that excludes [sic] our needs." (Eegeesiak 2016, 5) In other words the ICC is making the argument that a focus on environmental realities and problems in the Arctic has allowed southerners to ignore the ways in which their own actions, including actions that emit greenhouse gases, produce global environmental issues.

Many representations of the Arctic are often written in a manner that further contributes to the depoliticization of climate change issues. Already, in Chapter 6, I discussed how even the use of English makes it more difficult for Inuit to engage in political discussions of the environment using IQ. Specific writing techniques and styles within English exacerbate this effect. Through critical discourse analysis I found that many of the sites used very detached and

technical writing styles, and also omitted any discussion of ethical or normative blame for climate change. The focus instead was on descriptions of the empirical changes occurring in the environment, and what types of technical interventions policy makers could make to affect those changes. For example, the Arctic Council site used lots of passive voice, rarely wrote from a first person perspective (or even framed authorship of articles in any manner), did not mention specific individuals or countries emitting disproportionate volumes of greenhouse gases, and used a very neutral and objective tone. All of these writing strategies make the writing feel very cold, particularly when compared to the highly emotive and personal ways in which the Inuit sites discuss changes to the Arctic as impacting their communities and livelihoods. These strategies diminish the political and social aspects of environmental change in the Arctic.

The governmental organizations, including the IPCC and GN, regularly used similar writing styles. The IPCC site broadly represented the environment as a set of materialities that are being affected by climate change, and that can be studied, modeled, and manipulated through science. There was also a recognition that climate change is producing different impacts for different regions, and that 'developing' and 'developed' countries have different needs and responsibilities. Nevertheless, there is never any discussion of blame or ethical culpability in the production of climate change, nor any recommendation that human societies need to transform their fundamental relationships with the environment. The focus is on adaptation and mitigation through technology and policy. This lack of culpability is reinforced through pervasive use of the passive voice to discuss processes including climate change and greenhouse gas emission. Even some of the reviewers of reports within the IPCC recognize these problems. One reviewer, for instance, points out that IPCC documents are well written but tend “to read like a textbook” that often “remains dense and sometimes obscure.” (IPCC 2006) These observations mirror some of

Francis's comments, discussed in Chapter 6, that digital environmental discussions are made inaccessible to community members through their technical language. Here I argue that this technical language also obscures the social processes related to climate change.

These styles were also prevalent across the stories on the news sites. I found them to be particularly prevalent on Fox News – none of the stories that I analyzed leveled any ethical blame for climate change or for Arctic environmental change. More generally the Fox site did not contain much discussion of the causes of climate change or whether those causes might be anthropogenic. Even Nunatsiaq News often used an objective tone and passive tense to describe changes in the Arctic. I only saw more personal and active writing styles within editorials on these sites. The prevalence of a detached tone across the sites reinforces the detachment of the material dimensions of climate change from its social, political, and moral aspects.

Taken together, these transformations of the Arctic into a purely material space function to invisibilize precisely the dimensions of environmental change that IQ could be leveraged to most effectively address. They also produce a geographic imagination of a material Arctic that Western science, with its focus on empirical analysis, is expertly capable of knowing. These representational and writing styles decrease the relative power of IQ as compared to Western science, and make it easier to fold IQ within Western science.

### *7.3 Normalization of Science through Linking and Citation Patterns*

A range of linking, quoting, and citation practices ensure that primary scientific material is normalized across digital spaces, while Inuit perspectives are primarily relayed by qallunaat in an anecdotal manner. Links, citations, and quotes embedded within documents across the sites tended to reference Western science far more then indigenous knowledge. This means that references to Western science play a major role in legitimizing the claims that are being made

across these sites. The IPCC site offers the most visible display of science. All of the IPCC pages and policy reports heavily cite scientific reports, incorporate scientific authors, and emphasize the importance of scientific citations, emerging research, quantitative data, and peer review. IPCC reports, in particular, are governed by strong Western scientific norms that encourage dense references to peer-reviewed publications. In some instances (e.g. Schneider et al. 2001) the site does reference the inclusion of non-peer-reviewed literature, but even here this does not appear to include indigenous forms of knowledge. Instead, they site the importance of "industry reports; reports of governmental agencies, research institutions, and other organizations; proceedings of workshops; working papers; and unpublished data sets." (Schneider et al. 2001, 78) These IPCC reports emphasize the complexity of the scientific methods being used to estimate the impacts of climate change, and also stress that all scientific claims are based upon multiple, independent studies that corroborate one another.

These practices portray science as a comprehensive system that is supported by a wide range of evidence, institutions, and authorities – unlike the anecdotal and localized portrayal of IQ. None of the IPCC pages mention IQ as a contributing source of information for reports. The closest that they come is to recognize the need for qualitative, community-based and participatory forms of research for better understanding community resilience and adaptation. There is no indication that IQ might be useful outside of its local context. Instead, IQ is simply an example of local adaptation, and not as a possible contribution to broader global debates. The IPCC reports also offer no real knowledge of what IQ might mean or look like, and the normative aspects of IQ are entirely elided. In other words, IQ is reduced to a localized instance of an empirical adaptation strategy, not as a legitimate form of knowledge equal to science.

These practices extend past avowedly scientific organizations like the IPCC to news

media and governmental sites, all of which describe Western science as being uniquely able to access truth. On CNN scientists and scientific reports are described as 'showing' things, as if they had unmediated access to reality (e.g. CNN 2014). On another page there is a quote from Ron D'Dor, a professor of marine biology, in which he asserts his ability to describe the 'truth' of the environment: “The disturbing truth is that humans are having unrecognized impacts on every part of the ocean, and there is much we have not seen that will disappear before we ever get a chance.” (O'Dor qtd. In Levitt 2013) Similarly, Fox News includes multiple, direct references to specific scientific and governmental reports and to peer-reviewed journal articles. Indigenous knowledge is, instead, framed as providing empirical evidence that is only made true when confirmed through scientific studies. One Fox story mentioned how a scientific study confirmed what “Indian hunters” have been saying about an increase in polar bear populations (Hume 2016, np), while another discussed how “Inuit natives” had told scientists about environmental dangers to narwhals (Borenstein 2008, np). Quotes never came directly from indigenous peoples on either of these pages, but science was often supported by quotes from scientists, governmental actors, or environmental organizations. For example, in the narwhal article referenced above, indigenous views are passed along by Bob Corel, the head of an international team of scientists. He indicated that, “Inuit natives of Greenland were telling scientists last year that it seemed that the narwhal population was in trouble”. (Borenstein 2008, np) This was the full extent to which IQ was included in the discussion – the majority of the article focused on describing a recent study published in the journal *Ecological Applications*.

The Globe and Mail and Nunatsiaq News mention indigenous peoples more often than either CNN or Fox, but does so in a way that nonetheless frames their contributions episodically. The site mentions indigenous peoples in a little over half of the pages that I analyzed, but only

three of these incorporate rigorous discussions of IQ. Many of the articles do, however, rely heavily on science, incorporating many quotes from scientists, discussion of scientific publications and reports, and discussions of scientific methods including satellite imagery and climate models. Quotations from scientists far outstrip quotations from Inuit across the pages, even though there are some Inuit quotations. When IQ is represented it is often framed episodically as an observation made by a single Inuk. For example, one page includes multiple quotes from Pierre Tautu, a hunter from Chesterfield Inlet, in which he discusses local observations that he has had that confirm that the environment is changing (Walton 2007). These include his observations of new animals in the area, including new birds as well as a dragonfly. While these observations are tied to stories that he has been told by elders in the community, and are subtly placed within the context of IQ, the story still reads as being highly anecdotal. And, in fact, the page later discusses how both "anecdotal and quantifiable evidence" are confirming the effects of climate change in the Arctic, and then includes a discussion of scientific research in the area. This seems to intimate that Tautu's observations are a form of anecdotal evidence, rather than as an example of evidence based on indigenous ways of knowing. Nunatsiaq News discusses indigenous peoples even more often than the Globe and Mail, and its stories exhibit a more complex relationship with IQ – but still not one that strongly emphasizes IQ as its own epistemological system. Approximately half of the stories I analyzed make no strong mention of IQ or Western science, and several other pages focus exclusively on scientific evidence to justify knowledge claims.

Governmental sites similarly normalize Western science through citation practices, while minimizing the potential contributions of IQ. The ECCC discusses conservation strategies as being based on Western scientific research, citing the importance of taking actions that are

"based on the general philosophy of achieving scientifically-based, desired population level" and assessing threats based on comprehensive reviews of "scientific information and expert opinion." (ECC 2013, np) Throughout the pages there is a strong emphasis on quantitative surveys as a method. Perhaps most telling, though, was the results of my analysis of the 'Environment Science Experts' that were listed as being associated with the ECCC. Of the 354 experts that have profiles on the site, only three included any mention of indigenous knowledge. Nor was it necessarily clear that any of these three individuals were indigenous knowledge holders themselves – only that they have conducted some form of research that incorporated Aboriginal knowledge. Western science maintains a very strong hegemony over the production of truth on the site.

The site describes environmental destruction as being produced not because of conscious political or economic decision-making, but simply because people have not had access to the correct, scientific truths. For instance, an ECCC (2013a) public document urges "you", the reader, to learn more about migratory birds so that you don't inadvertently hurt them. Another ECCC (2013b) report describes how a "lack of rigorous monitoring information" and "an incomplete understanding" preclude "an assessment of status and assignment of quantitative objectives." (np) The page does identify indigenous peoples as stakeholders in environmental issues, but does not discuss any form of indigenous knowledge as important for producing this information and understanding. Instead, all references are to "scientifically desired population levels," "quantitative objectives," and "scientific information and expert opinion." (ECCC 2013b, np) This frames indigenous peoples as exclusively political actors, rather than as holders of key forms of knowledge. The IPCC site follows a very similar pattern – reviewers of reports sometimes ask to see more community-based research in order to better understand how communities might *adapt* to climate change. The communities are not, however, described as a

source of knowledge about climate change itself. This paints indigenous peoples as passive reviewers of change that need to be aided through *scientific* study, rather than active knowledge agents themselves.

Even the Arctic Council, an organization founded on principles of the inclusion of indigenous participation (Young 2016), subtly prioritized Western science over indigenous perspectives. The site does mention indigenous people both as partners and as people that need to be protected, and it also does not explicitly mention scientific studies very often. However, many of the statements across the analyzed pages do include hyperlinks to scientific reports. In contrast, indigenous knowledge is sometimes mentioned as something that is important, but there is never actually any direct inclusion of indigenous quotes. Western science is also normalized directly into the structure of the site. For instance, the Conservation of Arctic Flora and Fauna (CAFF) Working Group pages include a menu at the top of the page that includes sections on 'Monitoring', 'Assessments', 'Data', and 'Publications', without a corresponding section for IQ or other forms of indigenous knowledge.

Wikipedia offers some of the most overt examples of how the terms of service and citation standards of Websites govern digital knowledge production in ways that normalized Western science. Participation on Wikipedia requires that users follow strict guidelines governing what types of content can be published (Young 2016). This includes a stipulation that all statements be based on 'reliable' 'sources, which are defined as published and unbiased secondary sources. This focus on *secondary* sources that are published likely excludes the personal and experiential perspective built into IQ, particularly when IQ is passed along via oral tradition rather than written publications. In practice none of the Wikipedia articles that I analyzed included clear and direct citations of Inuit authors. At best the articles included information about

Inuit that was published in a newspaper based in the south, such as CBC. In fact in the Talk pages of the polar bear entry, these Wikipedia guidelines were actively used to exclude claims that were not supported by peer-reviewed, scientific sources (Young 2016). This compounds some of the difficulties, discussed in Chapter 6, that Inuit face in trying to express IQ within a text-dominated space like the Internet.

The norms of public visibiliity built into Western science may be giving it some of these advantages across the Web. Scientific citation practices work well within digital spaces designed to be widely visible to broad publics. In contrast, IQ contains norms that encourage much more private and personal forms of knowledge transmission. Some Iglulingmiut talked about the need to be careful about choosing with whom they share shamanic knowledge. I heard community members discuss how shamans are not supposed to talk about shamanism publicly, even in their own community. I noticed that many Iglulingmiut did hold strong spiritual views of animals and of *sila*, but that these views were only expressed very subtly when I was around - likely because I am qallunaat and a relative newcomer to the community. Toby more strongly argued that sharing shamanic knowledge, or even talking about shamans, can lead to bad consequences in one's own life. She believed that it was a bad idea to share this form of knowledge within public, digital spaces. When asked about whether there were types of knowledge that should not be put on social media, she said:

> Yeah. I'd say so. 'Cause there are always consequences in any actions and there could be a very big consequence from shamanism. Because, well, I, personally I believe in the... I still believe in it. And, talking about shamans, I was once told that if you start talking about one a spirit will come by and watch what you're doing. Yeah, that's how much I believe in them, I don't want to talk about it, I don't want to hear about it, because I've learned about their abilities, so if they want to be unknown I'll respect that, so I don't talk about it. It's hidden knowledge. Yeah. Yeah. (Otak 2016)

This contrasts heavily with thinking about scientific methods – sharing scientific methods and knowledge broadly make the science stronger, while sharing shamanic knowledge too broadly can produce dangers for those involved. This points to how the very connectivity of the Web, as well as the difficulty of removing knowledge shared on the Web, may hinder the effective use of IQ. Inuit require a system that allows for more nuanced social practices around the sharing of knowledge than is allowed by a public Website.

Many of these practices are quite subtle – presence of links and citations, or a disproportionate representation of quotes – but their power is amplified by the fact that evidence of actual processes of knowledge production are generally obscured across the sites. Most pages do not include discussions of actual data, research methodologies or analysis techniques. Instead, Web pages legitimize claims only by providing a link to an external report or by attributing the claim to a scientist. The actual scientific methodology is almost never discussed in any detail. The same trend occurs with regard to IQ – the words 'traditional knowledge' or 'IQ' are often invoked without giving any actual description or examples of knowledge within IQ. Pages tend not to transcribe very long discussions between elders or show video of Inuit out on the ice, which are key sites where IQ actually becomes visible and shareable. Readers of these sites are not exposed to what it means to think scientifically or to think through an IQ perspective. Instead, they must rely entirely on subtle clues – such as linked reports or citations – to determine the validity of knowledge claims.

This puts IQ at a comparative disadvantage to Western science. Because qallunaat are less familiar with IQ as a system, they are less able to pick up on subtle indications of IQ. The sites that best represented actual evidence of IQ often did so without labeling its presence. Across DID, ICC, ITK, and GN, the best representations of IQ occurred in PDF transcriptions of

discussions between elders, videos that displayed hunting practices, and the very occasional reference to spiritual relationships with the land. The ICC site, in particular, describes IQ as a process and a relationship that requires the participation of IQ holders in discussions – IQ is not a transferable form of data that can be divorced from the Inuit that hold it. Some PDF reports of ICC workshops offer the strongest depictions of IQ, since they include long transcripts of elders conversing with one another about topics including adaptation, hunting methods, the emotional and spiritual aspects of surviving out on the land, respect, and much more (ICC 2014). However, these IQ holders rarely labeled their knowledge as 'IQ' or 'traditional knowledge' – it was simply their own knowledge to them. This means that IQ is difficult to find or identity for Internet users that are not already familiar with this knowledge system and intentionally seeking it out.

Instead, when the term 'IQ' is visibly invoked within these Inuit-run organizations, it is primarily used as a discursive tool for interacting politically with qallunaat, rather than for talking about Inuit knowledge with other Inuit. Inuit organizations employ the term to get audiences to agree to particular political proposals, to paint a particular empirical picture of the Arctic, to increase the amount of consultation done with Inuit, and more. These political processes are quite important, and they are discussed more in Chapter 8. For now, though, I simply point out that these uses of the term still offer a very shallow engagement with the actual knowledge systems upon which these articles are based. Qallunaat are more able to fill in the holes by relying on the knowledge system with which they are already familiar, that of Western science. In the next section I explore additional knowledge politics, beyond citation patterns and invocations of labels, that further diminish the likelihood that qallunaat will engage with IQ as an epistemological system separate from Western science.

### *7.4 The Flattening of IQ*

This final section examines how the few descriptions of IQ that do exist across the Web flatten and reduce this epistemological system to be a collection of social or empirical facts that can be folded into other epistemological systems – namely, Western political and scientific frameworks. This ensures that qallunaat can think about and engage IQ from their own southern logic, rather than engaging rigorously with other ways of knowing about and acting toward the world. This transformation of IQ also denies Inuit the ability to leverage the full depth and normative power of their epistemological system when they engage with qallunaat online.

Inuit organizations most strongly foreground IQ on its own terms, as a separate epistemological system that is incommensurate with Western science. However, even these sites rarely depict IQ as anything more than a social system or form of empirical observation. The NTI site made the most explicit arguments in favor of broader recognition of IQ as a knowledge system. The strongest mentions of IQ came in the form of descriptions or reports of workshops and roundtables on environmental management in Nunavut. For example, one page describes a National Polar Bear Roundtable in Canada that brought together Inuit, scientists, environmentalists, and government officials (Buscemi 2009). The description urges non-Inuit to not "underestimate the accuracy of Inuit traditional knowledge or Inuit Qaujimajatuqangit (IQ) when dealing with issues surrounding the polar bear" (Buscemi 2009, np). However, the page does not actually offer specific illustrations of what IQ is or what it looks like, and primarily just depicts it as empirical observations of the health of polar bears in the area. The page then goes on to say that these empirical observations have since been confirmed by Western scientists. This reduces IQ from a complex epistemological system concerned with normative values, spirituality, socio-cultural processes, and environmental knowledge, to a set of observations that can be confirmed (or not) by the empirical methods of Western science. Not only does this

reduce the incommensurability of IQ from Western science, but it also grants Western science the ability to test the legitimacy of IQ's value as a knowledge system.

A much longer PDF report, based on a workshop on climate change adaptation challenges in Nunavut, does a better job of illustrating strong differences between IQ and Western science as separate ways of knowing the world. The page strongly argues that IQ needs to be promoted more within government decision-making, and that IQ "cannot be incorporated or integrated into science because societal values are broader than traditional knowledge which is anyway, by nature, unlike scientific knowledge" (NTI 2005, np). This report describes the Inuit relationship with nature as being ecological, spiritual, and social, and it effectively represents IQ as a seamless or holistic system. Unfortunately, this is the only page that so powerfully represents IQ in this way, and it is stored in a long PDF format that is less visible online[55]. Most of the other discussions on the NTI site focus on the legal system and legal rights of Inuit, the history of the Nunavut Land Claims Agreement, and the importance of consultation in Nunavut. These discussions tend to flatten IQ into a cultural or economic practice, which reduces its value as a comprehensive *epistemological* system. For example, one story discusses the importance of "developing "science curricula [in schools] that reflect Inuit cultural realities and values," (Aarluk Consulting Inc. 2009, 32) while another discusses traditional harvesting knowledge as a means of providing livelihoods and of passing along cultural background, traditional skills, and language (Aarluk Consulting Inc. ND). This discourse represents IQ as a cultural resource that Inuit can utilize to better learn science or better cope with the difficult economic realities of the Arctic, but not as an epistemological system that should also be valued by qallunaat trying to understand processes of environmental change in the Arctic. IQ is not displayed as a comprehensive system capable of standing on its own, apart from Western science. As a result,

[55] See Chapter 6

Western science maintains its global expertise, while IQ is relegated to the position of a local cultural resource that boosts the resiliency of Inuit.

Nunatsiaq News similarly tends to incorporate Inuit perspectives by framing them in terms of cultural views or community beliefs rather than in terms of their epistemological values. For example, one article discusses how a lawyer newly appointed to the WWF is excited to work with local communities "to find practical and meaningful solutions that work" and how the "peoples of the Arctic have much to teach the world about sustainability." (Nunatsiaq News 2014a) Another page even more explicitly mentions IQ, but describes it more as a social system than a knowledge system. It reports that climate change, along with other resulting changes to weather and the environment, has made elders feel that their knowledge is not as useful any more and that their role in the community has been diminished (Nelson 2003). By reducing IQ to a social system, these descriptions reduce IQ that is only of value to Inuit in their social lives – and not as a system equal to, yet incommnesurate with, Western science.

Most of the Inuit sites also discuss Inuit knowledge in conjunction with Western science. Across the ICC pages, for instance, there is a very strong commitment to collaboration, mutual commitment, and respect between Inuit and Western scientists. Similarly, discussions of ITK's opposition to polar bear product bans are often justified through recourse to the "best available scientific and traditional knowledge" (np). While this politics of collaboration has important dimensions to it with regard to Inuit empowerment – which will be discussed in Chapter 8 – it nonetheless reinscribes inequality between the knowledge systems within the overall terrain of digital Arctic discussions. Science is often present without any mention of IQ, but IQ almost never stands on its own.

Additionally, even within these Inuit sites IQ is rarely described as containing a spiritual

component, and this reduction of IQ makes it easier to ignore the normative implications of IQ and fold Inuit knowledge into Western scientific frameworks. On the ITK site only a single analyzed page emphasizes spiritual dimensions to Inuit-nature relationships. Furthermore, these relationships are mentioned but not really described in any specific way. The article simply says that hunting is important for the “mental and spiritual health” of Inuit, and that Arctic animals provide Inuit with “spiritual awareness and strength as human beings within a larger, natural and interconnected world.” (Kendrick 2013, np) There is not a description of specific spiritual practices that help Inuit to interact or respect animals, or shamanic practices that allow Inuit to utilize spiritual techniques to better know the Arctic environment. Instead of emphasizing these multiple aspects of IQ, the knowledge system is almost always reduced to a form of empirical observation performed by Inuit. This reduction of IQ to empirical observations makes it very easy to then plug those observations into broader frameworks or narratives, such as Western science or conservation narratives. For example, many stories across the various news sites used Inuit observations as a 'hook' that led into a scientific discussion of environmental change in the Arctic. In these cases the story often described how science confirmed and explained the empirical observations being made by Inuit. For instance, one Globe and Mail article opens with a few quotes from Pierre Tautu, a hunter in Chesterfield Inlet, who has noticed that new animals are migrating to the area (Walton 2007). While Pierre's observations are tied to stories that have been told by elders in the community, and subtly invokes aspects of Inuit knowledge, it still reads as being a highly anecdotal story. Unless someone were looking for IQ, his quotes would likely be understood as a local interview that is episodically framing a broader discussion of climate change. The page then goes on to discuss climate change in highly scientific terms, and includes many quotes from different scientists and researchers.

In a similar manner, a Fox News article quotes four different scientists in its discussion of the effects of climate change on narwhals and polar bears. The primary impetus for the story was the publication of a new peer-reviewed journal article in *Ecological Applications*, and the discussion in the story mirrored the scientific framing of that article. The story included a single reference to Inuit as its last sentence: "'Inuit natives of Greenland were telling scientists last year that it seemed that the narwhal population was in trouble,' [scientist Bob] Correl said." (Borenstein 2008, np) Not only are these Inuit observations relayed to the reader through the voice of a scientist, but their knowledge is framed as a simple observation that confirms the more serious science discussed through the article. In some respects Inuit knowledge is framed quite similarly to citizen science – Inuit are framed as being capable of empirical observations that can either encourage scientific studies or be used as data for scientific studies. In fact, the ECCC site makes an even clearer link between the incorporation of indigenous perspectives and the practice of crowdsourcing. As part of a broader initiative to increase social media participation in driving climate change policy in Canada, the ECCC reposted the following message, originally posted by the Indigenous and Northern Affairs Canada Facebook page: "All Canadians, especially indigenous peoples, are encouraged to send their ideas on #climatechange in Canada." (INAC May 10, 2016) This discourse makes indigenous knowledge equivalent to any other form of opinion offered by any Canadian citizen. In each of these cases, these digital discourses operate quite similarly to those that Murphy (2011) found operating within research papers on co-management projects. While there is some mention of indigenous peoples and knowledge, these invocations of indigeneity nevertheless do not achieve any form of interepistemological discourse. Rather, they flatten indigenous knowledge such that it is intelligible within Western science.

In other cases similar techniques are used to fit Inuit perspectives into southern environmentalist narratives that justify Western techniques of environmental management. For example, the Greenpeace sitee included discussions of how IQ can help to "fill gaps and compliment [sic] science" (Cadan 2012, np). This page gave an example of how knowledge from an Inuit hunter could be used to justify more stringent hunting quotas – a state-based and techno-managerial solution which Inuit hunters themselves rarely advocate (Young 2016). Despite the Greenpeace site's inclusion of a formal apology to Inuit for the effects of their anti-sealing campaigns on Inuit (Greenpeace 2014a) and a Policy on Indigenous Rights (Greenpeace 2014b), the site often feels as though it is using images of Inuit to bolster its own campaigns. Thus, despite the organization's recognition that it needs to decolonize itself and to increase consultation of indigenous peoples, there is little evidence that it is deeply engaging with the indigenous forms of knowledge and normative values that underpin IQ. Inuit leaders like Leona Aglukkaq have questioned the Greenpeace apology as an attempt to "use Inuit as weapons in their own battles." (Aglukkaq qtd. In Nunatsiaq News 2014b) This is once again an attempt to reduce Inuit knowledge and perspectives to a flattened political token that can be used to support Western advocacies and Western systems of belief and knowledge. As a result the Inuit site visually re-presents (*darstellan*) Inuit on the Web while at the same time precluding any possibility that their interests will be politically represented (*vertreten*; Spivak 1999; Young 2016).

In other instances IQ was not co-opted and assimilated, but instead was restricted to particular geographic spaces or invalidated as irrational and corrupt. Across many of the sites indigenous knowledge is often portrayed as a form of knowledge that is only applicable to the locality of the indigenous people in question, and IQ in particular is portrayed as only being

pertinent to the Arctic. Across the Arctic Council site, they regularly use the phrase *local and traditional knowledge*. While the organization is probably using this phrase to expand the acceptance of many different forms of local knowledge that may not also be considered 'traditional', it also works to contain so-called traditional knowledge within a locality. Similarly, while the IPCC site does include some discussion of adaptation strategies being employed by Nunavummiut, it in no way indicates that these indigenous practices or forms of knowledge might be useful outside of the local context of Nunavut (Adger et al. 2007). Instead, the report wants to better understand these local adaptation strategies so that scientists and policy makers can help improve those local strategies. This trend is consistent throughout most of the sites that I analyzed – authors very rarely argue that IQ has any insights into how southern societies might make fundamental changes to their relationship to the environment. As a result, science is portrayed as applying to *both* southern and northern societies, while IQ only applies to Inuit. In each case science is always depicted as being epistemologically global, and more powerful than localized IQ.

Finally, Inuit are regularly racialized, naturalized, or described as corrupt to argue that IQ is a biased and delegitimized knowledge system[56]. Accusations of greed, for example, were regularly aimed at Inuit hunters. In past studies I found that users directly commented on CNN stories about how the hunting of polar bears is driven entirely by greed (Young 2016). The user Boo (2013) connects this greed to alcoholism, arguing that a solution to polar bear hunting is simply to give Inuit a bottle of whiskey if they choose not to shoot a bear. Users further described Inuit as backwards and xenophobic. These racialized descriptions were used to frame

[56] Accusations of corruption are also leveraged against Western science by people denying climate change, but these accusations lack the racialized discourse that I discuss here. Scientists are described more as active agents *choosing* to distort science to accumulate wealth, while Inuit are depicted as more passive bodies that are driven by material need to distort truth.

Inuit descriptions of polar bear populations as economically motivated, rather than as based on valid knowledge of the bears. This demonstrates how a combination of racism and discourses of greed can be used to invalidate Inuit knowledge claims, that polar bear populations are stable or increasing, and normative claims, that polar bears can be ethically hunted.

These dynamics are also represented poignantly in a discussion within one of the Talk pages related to the polar bear entry on Wikipedia. This conversation, which primarily takes place between users Peterlewis and 83.78.134.170, addresses the issue of whether or not the Wikipedia entry should incorporate Inuit observations that polar bear populations are increasing. Peterlewis (2007a) begins the conversation by noting that he has added a link to a story from *The Daily Telegraph* that describes a survey of the polar bear population in the Davis Strait by Mitch Taylor. This link is quickly rejected because it is described as coming from a conservative paper (151.202.74.135 2007). The users argue that it violates the neutral point of view guidelines of Wikipedia. In response Peterlewis (2007b) then posts links to *Nunatsiaq News* and *Scienceline*, which he claims are neutral and supportive of *The Daily Telegraph* article. It is here that the user directly connects the conversation to Inuit, asking "Isn't it time to celebrate the survival and growth of this magnificent beast? And also celebrate the dignity of the Inuit people?" We must try to keep Wikipedia neutral and unbiased so that readers can make up their own minds on conservation and other issues." (Peterlewis 2007b, np) Peterlewis has reversed the dynamics of the debate, arguing that it is the exclusion of the Inuit point of view that is making the argument biased. He claims that the inclusion of his citation is the only way to ensure a balanced article.

The user 83.78.134.170 (2007a) responds aggressively to this post, claiming that they are "not really sure if I can even take you seriosly [sic] Peterlewis", that edits were a "poor edit", and that Peterlewis is engaging in a misrepresentation of facts. The user then goes on to invalidate

claims made by Inuit due to their (monetary) conflict of interest: “the telegraph article makes clear that the Inuit are highly interested in not having a change in status to the polar bears as it is a lucrative business for them to hunt it, also they make clear that this study was commissioned by the Inuit as well.” (83.78.134.170 2007a, np) He is arguing not only that Inuit knowledge of this situation is too biased to be taken seriously, due to their monetary interest in polar bear hunting, but also that that the science produced by scientists that accept funding from Inuit is similarly corrupted by that money. The user goes on to say that this discussion has even turned them against Inuit more generally, stating that “you have made me *no friend of the Inuit* who now seem like base greedy slime balls” (83.78.134.170 2007a, np) and that Peterlewis has “changed me from being rather on the Inuits [sic] side, to being rather sceptical [sic] of the Inuit.” (83.78.134.170 2007b, np) The user even intimates that the conversation might have made them feel some racism toward Inuit: “if it was your wish to prevent racism toward the Inuit, then you had the opposite effect creating someone that was not at all racist toward them, to now have an unfavorable opinion of them and to think of them with prejudice” (83.78.134.170 2007b, np) The conversation paints Inuit knowledge as something that should be treated prejudicially due to the greed of Inuit hunters.

This conversation only ended after an intervention by someone claims to be Inuit encouraged the two users to take a step back from their antagonism. This user (Anonymous 2007) suggested that the others needed to “go and take a chill pill” because they felt that the other two “are not helping this situation we are in.” (np) This anonymous user described how they had been on a wildlife management board and had “delt [sic] with these issues on a more serious level.” (Anonymous 2007, np) It is significant that the user invoked their participation on a wildlife management board – with its technical and scientific connotations – rather than

drawing on IQ. They chose to flag Western science as the authority to delegitimize the antagonistic discourse of the other two users as being neither helpful nor serious. The anonymous poster then goes on to legitimize the Inuit relationship with bears by invoking economic rationalizations rather than IQ:

> To think that we native people depend on the health of our [sic] most of our animals to get us through the expensive life we live up here. Even though i hunt this animal for profit now and then. I have the greatest respect for them and would in no way jepordize [sic] their position here on our planet. (Anonymous 2007, np)

Finally, they turn the tables on the two posters, by arguing that it is the influence of Western culture that has corrupted the relationship of some Inuit with the environment. As they put it: "We have been adapting with the life of Western civilization since only the late 1800' [sic] and it is there you get those 'gressy [sic] slime balls' you so elequently [sic] put it that gives every culture a bad name." This was the last comment in the conversation – no one responded to this intervention. The Wikipedia article itself was never amended to incorporate Inuit perspectives on bear populations to the same degree that it incorporates scientific perspectives. Inuit perspectives are always marked as being beliefs, folk tales, or legends, or framed as a political and economic intervention in management policy rather than as a serious source of knowledge. In nearly every instance Inuit beliefs about polar bear population growth are immediately refuted using scientific sources (Young 2016). There is no discussion of Inuit descriptions of the moral relationship between Inuit, hunting, and bear populations. When combined with the lack of citations from Arctic sources, this representation strongly portrays Inuit as economic actors rather than knowledge holders.

Taken together these techniques are used to limit the authority of IQ, and instead reduce it to a set of empirical observations that can be integrated into the more globally applicable systems

of Western science. These epistemological practices have the effect of reducing the potential of IQ to stand on its own as an epistemological system incommensurate with, but equal to, Western science, and also decrease the potential of IQ to challenge fundamental aspects of southern relationships to the environment. IQ becomes compatible with southern views of the environment, rather than a normative critique of those views. Other discursive practices, including the spatial containment of IQ to the Arctic, further ensure that the moral insights of IQ are not applied to southern contexts. Finally, IQ is further delegitimized through narratives of corruption, which describe Inuit knowledge as biased by their political or economic motivations. Taken together these discursive tactics function as a comprehensive system that dramatically minimizes the potential that IQ might be used as a critique of southern relationships to the environment.

### *7.5 Conclusion*

This chapter describes how IQ is selectively included within digital spaces through a set of epistemological transformations that ensure that it is always subordinated to Western science. I explored how the Arctic environment is digitally transformed to make the normative aspects of IQ less relevant, how citation and linking practices normalize Western science, and how IQ is flattened to be a set of local, empirical observations that fit within Western scientific frameworks. When combined with the analysis in Chapters 5 and 6, I have now identified three different sets of materialities, processes, and practices that reproduce epistemological hierarchies within digital spaces. First, the material infrastructure and embodied practices of digital engagement produce a hierarchy in which IQ is replaced by southern thinking within Inuit communities. This impacts the very existence of IQ, which reduces the ability of Inuit to draw on IQ should they want to employ it within digital spaces. A second set of digital practices produces a hierarchy in which

Western science is present across the most visible spaces of the Internet, while IQ is invisibilized or relegated to more local digital spaces. The differential exclusion of IQ reinforces the global normalization of Western science and reduces the likelihood that qallunaat will ever encounter IQ. Finally, this chapter described practices that produce a hierarchy in which IQ is flattened to fit within Western science, such that southern systems of thinking come to control the overall epistemological frame through which IQ is understood. As a result, even when IQ does emerge onto the Web, it is unlikely to emerge in a way that is notably different from the types of thinking encouraged by Western science. These three sets of processes represent a progression of increasingly disciplinary controls of the emergence of IQ into digital spaces, from the material elimination of IQ to the invisibilization of digital IQ to the subtle shaping of IQ such that it conforms to southern logic. These processes reinforce the hegemony of southern epistemological systems within digital spaces, and leave little room for transformative encounters between Inuit and qallunaat.

## 8. The Digital Arctic: Common Notions

It could be, 'cause there's no way we're going to get out of this digital age. Like, it's going to be a part of our life now. It's, like, days of yester yore where my forefathers traveled by dog team and living subsistently off of the land where I didn't need to come to the community for supplies, that's long gone. If I started drinking broth only, as opposed to tea and other condiments, coffee and sugar, whatever, I'd be like, 'Oh man, I'm missing out big time.' Like, if I start eating country food only and then start missing out on that wonderful pasta. I'd feel like I'd really be missing out. It's like, modern technology is so much part of our lives now. -Francis Piugattuk, Iglulingmiut

I always heard that the elders could read the weather just be looking at the clouds. Now, how do they do that? Now, if somebody could program that so that all of us could learn... I've touched that subject a number of times, but they kept telling me that with global warming you can't tell that anymore. So, something is happening. […] So if somebody can program that, we could all learn. -Zach Kunuk, Iglulingmiut

### *8.1 The Production of Digital Common Notions*

Despite the concerns that my participants expressed about the Internet and the barriers to using the Internet effectively to engage qallunaat, those same participants almost invariably expressed an optimism about digital engagement. Most of my participants were very active Internet users, even when they also identified aspects of that use that concerned them. Nearly all of my participants also agreed that there was very little that they would not share over the Internet – they were eager to connect with others through digital means and to share information about Igloolik, Inuit culture, and life in the Arctic. They emphasized the need to share *Inuit Qaujimaningit* (IQ), particularly so that it is not lost over time. At times this desire to engage the Internet was framed within a broader narrative of cheerful fatalism. The opening quote from Francis expresses this attitude. For him, modern technology is an inevitability that is not going to disappear anytime soon, and so Inuit will necessarily adapt to and embrace that technology. As Francis points out, Inuit have long engaged in this type of adaptation. In fact, adaptation, or *qanuqtuurunnarniq*, is one of the central tenets of IQ. Other participants, like Zach, have embraced the opportunities presented by digital technologies even more actively. For him

technology is something that should be actively sought out and combined with IQ. He felt that Inuit have successfully adapted radio and movies to represent and transmit IQ in empowering ways, and now they can do the same with Internet and social media. This isn't to say that all problems or difficulties associated with social media, as described in the preceding chapters, will just disappear with time – Zach is the first to recognize the difficulties that Inuit face. But, he remains optimistic that trial and error will bring good results. As he says, "We're just trying. I mean, I think we're still learning. Because in our culture we watch and learn what it's for. There's a good way of using it and a bad way of using it. We're trying to use the good side." (Kunuk 2016)

This chapter explores the practices that Inuit have engaged in to use the 'good side' of the Internet, to resist or reverse some of the epistemological hierarchies examined in Chapters 5 – 7. As I argued in Chapter 2, Inuit have historically chosen a conscious political strategy of pursuing compromise and consensus with one another and with qallunaat. This is evident on the international stage as they call for increasing international cooperation on environmental issues (e.g. Watt-Cloutier 2004). This strategy quickly also became apparent online. I encountered many moments where Inuit used the customizability and connectivity of the Web to develop frames and techniques that bring them together in environmental conversations with qallunaat. In doing so these Inuit used the Internet to push for less hierarchical and more pluralistic engagement between IQ and qallunaat ways of knowing. Despite all the strategies of exclusion and co-optation that I have detailed throughout this project, these digital techniques successfully functioned to decrease epistemological hegemonies and produce interepistemological exchange.

I analyze these techniques that Inuit have developed to pursue interepistemological dialogue as forms of mediating concepts or practices. Mediating concepts are topical areas of

discussion that individuals situated from within different epistemological systems can come together to discuss. These concepts should be designed such that they are important and understandable from within each epistemological system, but also so that neither system fully accesses all of the dimensions of the concept as understood from the other system. In this way the concepts can help individuals build common notions of the world across the different epistemological systems (by understanding how the concept comes to matter in the other system), but also to understand the incommensurability of the two systems of thinking (by highlighting differences). In this way mediating concepts emphasize that each knowledge system is equally powerful at describing the world, and that the different systems might be used together to discuss similar types of phenomena. However, mediating concepts also demonstrate that these systems cannot simply be equated to, or folded within, the other knowledge system. Bignall (2010) offers the concept of native title as one example of a mediating concept – while native title contains Western notions of territorial sovereignty and legal title, it also recognizes and valorizes longstanding connections to land. Invocation of the concept of native title produces space in which indigenous and non-indigenous peoples can come together to discuss normative principles surrounding how societies should relate to the land. While these discussions may not produce perfect agreement across different perspectives, they do encourage the production of a relatively non-hierarchical and pluralistic space that highlights points of agreement and disagreement. This is a much richer space than allowed by the exclusionary and flattening processes described in Chapters 5-7.

Mediating practices function in the same manner as concepts, but they offer rules of conduct that can help to guide engagement across difference to encourage listening and respect. By encouraging behaviors of listening respect, mediating practices once again open space for

individuals to pluralistically negotiate the similarities and differences between their epistemological positions. Bignall (2010) identifies the acquisition of consent as a mediating practice, since it requires that all individuals use their own voice to give permission for engagement. Drawing on the work of James Tully, she describes how consent is a concept rooted in liberal political philosophy, but that many indigenous cultures have corresponding notions. This has allowed indigenous peoples to develop, sometimes on their own and sometimes in conjunction with Western researchers, practices of informed consent that govern research in their communities. These rules of conduct once again open space to discuss how Western and indigenous knowledge systems are implicated in the production of knowledge within the space of community-based research. This mediating practice is designed directly to resist and reverse hierarchical models of community-based research, in which researchers enter communities without considering the role of indigenous perspectives or needs as they relate to their research project.

In this chapter I examine how Inuit have developed mediating concepts and practices on the Internet which work against the epistemological hierarchies that I identified earlier in the dissertation. I examine one set of mediating practices – practices of consultation and collaboration – and one set of mediating concepts – adaptation and resiliency – that Inuit have used to push for greater epistemological pluralism in qallunaat engagements with the Arctic. These concepts and practices are used to push Inuit-qallunaat encounters to be more pluralistic and transformative, rather than hierarchical and co-productive with Western hegemony. In Section 7.2 I examine digital negotiations over practices of consultation and collaboration within the Arctic. I find that discussions of these practices are key discursive sites for reversing the epistemological hierarchies described in Chapters 5 – 7. They have pushed for forms of

consultation that allow them to build in situ, and even digital, support for the transmission of IQ, to highlight the complex and irreducible qualities of IQ, and to argue that IQ should not be integrated in Western science. Then, in Section 7.3, I analyze the mediating concepts of adaptation and resiliency. I argue that Inuit have used discussions of adaptation in the Arctic to re-politicize the term and reverse the highly technical frames that have often characterized the concept. By supporting local forms of adaptation and resiliency, engagement with this mediating concept also helps Inuit to reverse some of the *in situ* effects that digital technologies have had on IQ. Digital negotiations over these concepts help to bring Inuit and qallunaat together around common notions of how they should engage one another and the Arctic, and thereby offer opportunities for more pluralistic and transformative encounters. They offer key examples of how the Internet can be used to encourage minoritarian forms of environmental politics.

### *8.2 Consultation and Collaboration*

This section examines how Inuit have used the Internet to negotiate over meanings of the practices of consultation and collaboration, to better employ them as mediating practices that break down existing epistemological hierarchies. While Inuit have used consultation as a tool to increase their power in relation to governance organizations in the Arctic, this strategy has faced key limitations in the past. I argue that digital technologies offer key tools for overcoming these limitations, and allow Inuit to reverse some of the epistemological hierarchies discussed earlier in this dissertation. Specifically, Inuit have created frameworks of consultation to argue for the reversal of material and infrastructural constraints, to resist the flattening of IQ, and, ultimately, to make a strong argument as to why IQ cannot and should not be integrated into Western science. Construction of this mediating practice has allowed Inuit to demonstrate that Western science is not a global epistemological system, and that qallunaat must justify the worth of their

epistemological system when bringing it into the unique context of the Arctic.

The practice of consultation, as well as related notions of collaboration and informed consent, has a long history in the Arctic. Inuit have pushed for greater consultation both in governmental decision-making processes and in scientific studies. A brief history of the politics of consultation as they relate to Arctic Council governance and scientific projects helps to illustrate this history (Young 2016). Inuit were involved in the writing of the Canadian *Framework Report* that acted as an initial blueprint for the organization, and as a result indigenous inclusion was highlighted as a key goal (Arctic Council Panel 1991; Nord 2016). Since its founding the Council has continuously reaffirmed its commitment to the guaranteed consultation rights of indigenous peoples, as well as to the importance of integrating traditional and local knowledge[57] into its projects (Arctic Council Indigenous People's Secretariat 2016). Since its founding the Council has continuously reaffirmed its commitment to the guaranteed consultation rights of indigenous peoples, as well as to the importance of integrating traditional and local knowledge into its projects (Arctic Council Indigenous People's Secretariat 2016).

For indigenous groups like the Inuit, the formalization of a consultation requirement provides a necessary opening to try to create space for interepistemological exchange with the many qallunaat involved in the activities of the Arctic Council. Unfortunately, though, the development of practices of consultation from within the context of a southern-based institution have prevented it from achieving its potential as a mediating practice. This institutional entanglement of the concept biases it toward southern epistemological systems – consultation is often set up as a process of integrating IQ into pre-existing Arctic Council projects, spaces, and structures. Because Arctic Council projects are often designed at a range of in situ meetings spread across the countries of its member states, it can be very difficult for representatives from

[57] This is the language used most commonly by the Arctic Council.

resource-starved indigenous groups to fully participate in this design process (Coote 2015). Rather than placing a greater burden on scientists and policymakers to consult Inuit about how their work should be planned and framed so that it is relevant to Inuit, consultation often means the shallow disclosure of project results to a community at the end of the project. This reproduces a hierarchy in which Western science is placed at a global level that can be applied to any local situation, while IQ only operates at that local level at the end of the process.

The connectivity and customizability of the Web, in contrast, allow Inuit to overcome some of these institutional constraints. They do so by allowing Inuit to more fully participate in the production of norms of consultation from the space of their own communities, rather than needing to travel to southern spaces to participate in the meetings that define how consultation should unfold. Although the costs of Internet access in the Arctic are steep, they are dramatically cheaper than the cost of constantly travelling to distant meetings. Inuit can use digital spaces to intervene in discussions of how consultation should be performed, and then transmit their own views of consultation to qallunaat. This allows them to recapture the norms governing consultation in such a manner as to reverse prevailing epistemological hierarchies and produce more pluralistic forms of engagement. Here I examine three different ways in which Inuit have utilized discussions of consultation practices to break down epistemological hierarchies.

First, Inuit have used descriptions of the desirability of consultation to work against the very material and infrastructural constraints that exclude them from some digital practices. Kingulliit Productions offers a particularly compelling case study of how Inuit have used the concept of consultation to convince others to invest in digital infrastructure in the Arctic. In fact, Zach's introductory quote to this chapter already offers some hints into how Kingulliit has drawn on discussions of consultation. In this case Zach is exploring the notion that digital software

might be a critical tool not only for storing IQ so that it is not lost, but also for encouraging cooperation between elders and Western scientists. He was hopeful that digital technologies might allow Inuit programmers to produce environmental models based on the knowledge of elders. Such programs might also incorporate environmental modeling techniques, but nonetheless involve high levels of coordination with elders and direction from Inuit communities themselves. Encapsulated within such a project is a strong emphasis on the need to invest in the training of Inuit so that they can produce their own digital platforms, on the need to consult IQ-holders about environmental projects, and on the need to allow those community-based consultations to drive the overall project.

The Digital Indigenous Democracy platform is an initial step in the direction of this vision that Zach shared with me. The site was originally envisioned as a platform that would allow Inuit to be "more fully involved and consulted in their own language" about economic development projects in the Arctic, such that consultation could become less of a one-sided project (Cohn and Kunuk 2011, 50; see also Scobie and Rodgers 2013). In order to justify funding for the project, the organization deftly blended together Western and Inuit concepts related to the practice of consultation – the Western concept of democracy and the IQ principle of *aajiiqatigiingniq*, or consensual decision-making (Isuma 2011). They argued that consultation was a key component of both democratic politics and aajiiqatigiinginiq, and that higher-speed digital networks was a key tool for enabling this consultation (Isuma 2011). Already, then, they are constructing consultation as a mediating practice that brings together values from both Western and Inuit cultures. Based on these arguments they were able to obtain funding from a range of southern institutions, including the Canada Media Fund, Mount Allison University, and Carleton University (Isuma 2011). They used this funding to develop one innovative solution to

the infrastructural constraints that prevent Inuit from taking full advantage of the Internet. Digital Indigenous Democracy was developed to share audio files across all Nunavut communities. Audio files are relatively small compared to video files, and Inuit are quite used to listening to the radio. This means that Inuit can use this platform to effectively transmit a media format that both resonates with Inuit oral culture and overcomes the limited digital infrastructure of the Arctic. As a result the platform is both technologically effective and epistemologically empowering. Communities in the Baffin area used this platform to communicate with one another about the $6 million Mary River mining project, in order to strengthen their collective position as they consulted with the Baffinland Iron Mine Corporation (BIM). As a result the project demonstrates both how the idea of consultation can produce material resources for the improvement of digital platforms, and also how those digital platforms can go on to improve actual practices of consultation. In the process these practices work to diminish the material constraints of the Internet that exclude IQ-based discussion.

This funding has further enabled Kingulliit to share its movies on its Website, with the goal of using "technology to build a new era of communication among Indigenous and non-Indigenous people and communities around the globe." (Isuma nd) Their most popular movie, *Atanarjuat*, has over 140,000 views on the site, and there is evidence that it is reaching both Inuit and qallunaat. Many of the comments on these pages appear to come from southerners, and they generally offer praise for the films. The Website also includes supporting material that facilities use of the movies in educational settings, and these materials often include discussions of Inuit culture, Inuit views of the environment, and more. In this way the organization is hoping to "assist people to listen to one another, to recognize and respect diverse ways of experiencing our world, and honor those differences as a human strength." (Isuma nd) This demonstrates how

technological innovation and increased access to resources can enable Inuit organizations to design multimedia platforms that facilitate transformative Inuit-qallunaat encounters.

Second, Inuit have used discussions of consultation to represent the complexity of IQ as an epistemological system, thereby reversing digital practices that flatten IQ. Connectivity between different Web pages is important for this, since the complexity of IQ is most apparent when browsing across many pages. Inuit knowledge is often framed such that it can be applied to a wide range of instances in which consultation might be possible. For instance, the Arctic Council site frames Inuit consultation in terms of the need for 'community' expertise and monitoring (Arctic Council 2011), 'local knowledge', and 'local and traditional knowledge' (Arctic Council 2013), to recognize the diversity of knowledges that might apply to different projects. The ECCC uses similar language to talk about the importance of the inclusion of indigenous peoples as community partners (ECCC 2014a) or stakeholders (ECCC 2013a, 2013b) that possess 'Aboriginal and community knowledge' (ECCC 2014b). Taken as a single instance, these discursive framing of IQ as 'local' or 'traditional' can be marginalizing for reasons discussed in Chapter 7. However, the broad malleability of frames available to IQ can also allow Inuit to deploy the term strategically to appeal to different institutional partners. This tactic appears to be effective on the ECCC site, which also describes the importance of "inclusive and broad-based advice from participants in these communities," and then goes on to describe communities as "like-minded partners" that support "the common goal of conserving and protecting Canada's recreational fisheries." (ECCC 2014a) These discourses have opened space for Inuit to insist upon greater representation within policymaking spaces, and placed a burden on government agencies like the ECCC to listen more attentively to IQ-holders. And, in fact, the conservation workshop described above was praised by Inuit leader Leona Aglukkaq for

demonstrating respect for the knowledge of local hunting and trapping knowledge (ECCC 2014).

Moreover, these calls for the inclusion of IQ is often more than simply a call for certain facts to be present within governmental reports – the development of consultation as a mediating practice also allows Inuit to push qallunaat to transform their view of knowledge from being purely representational to also being processual. Across Inuit sites consultation and inclusion do not necessarily have as an end goal the representation of Inuit observations within final products. Rather, this digital politics of collaboration has as a primary goal the production of embodied relationships and respectful spaces of collaboration for Inuit and qallunaat. In other words, these sites emphasize that it isn't *only* important that elders have their observations encoded in a final workshop report. Those elders, after all, know that much of their knowledge cannot be accurately represented in such a format, since it is so experiential. Rather, they emphasize that those elders should also have an opportunity to participate in the workshop, to build relationships with southern scientists and policymakers, and to have a space in which they feel respected and able to share their insights.

Sites of Inuit organizations also strategically draw on the complexity and malleability of IQ to apply it to a wide range of consultation scenarios that extend beyond matters of environmental science. This allows them to frame the consultative authority of IQ as extending to many different dimensions of life. For example, different NTI pages apply IQ to issues ranging from environmental management to issues of law and land tenure. In some instances IQ is described as offering good forms of ecological knowledge that have long been used by Inuit to effectively manage their relationship with wildlife. Qallunaat need to consult with IQ-holders to arrive at effective environmental policies. At other points the organization justifies the importance of IQ through discussions of its cultural and legal value. IQ is described as a part of

Inuit culture to which Inuit have normative and legal rights. The NTI particularly emphasizes the fact that Inuit won a legal right to consultation through the Nunavut Land Claims Agreement. This allows them to frame IQ as extending beyond issues of environmental management to governance, indigenous title to land, sovereignty, and more. This gives Inuit a range of discursive tools to force open space within Western institutions for IQ, and to increase the exposure of qallunaat to alternate ways of knowing and acting. These tactics demonstrate the complexity of IQ as more-than-representational and more-than-ecological, thereby reversing the flattening of the knowledge system.

Third, these tactics also highlight the incommensurability of IQ and Western science, which works against attempts to integrate IQ into science. All the Inuit organization sites focus on the importance of collaboration and consultation between both knowledge systems, depicting them as complementary to one another. The ICC, ITK, and NTI sites all stress the importance of cooperation between Inuit, scientists, and the Canadian government. It describes co-management regimes as being highly successful, and the NTI often encourage even greater dissemination of scientific knowledge in schools and to elders. Grammatical and technological framing, such as the repetitive use of the pronoun 'we' to describe actions taken by Inuit and Canadian government actors, discursively underscore the importance of this cooperation. Many of the ICC pages emphasize the need for the world to view Inuit as partners, particularly on issues of climate change and environmental conservation. For instance, in a statement to the CAFF Biodiversity Chair, Okalik Eegeesiak (2016) extends an invitation for cooperation in the Arctic:

> I want to extend an offer of cooperation and collaboration. Inuit want to work with you. We want to share knowledge and ensure the sustainability of our collective resources. […] We want them [families] to live in a new Arctic where our youth can have one foot in the space age and one in the snow age. We want our wildlife populations strong and abundant so we can continue to depend on

them for nutritious and wholesome food. (5)

Critically, Eegeesiak predicates the very notion of collaboration on an idea of epistemological pluralism – he describes collaboration as a form of sharing knowledge such that their children have access to hybrid space age and snow age epistemological resources.

Throughout these descriptions the Inuit sites strongly characterize collaboration as an equal partnership, not as a hierarchy. One NTI (2005) page does a particularly good job of representing IQ and science as complementary yet incommensurate with one another, in that IQ is better at understanding the normative implications of changes to the environment while science has more tools for predictive forms of analysis (NTI 2005). The site also emphasizes that IQ cannot be tacked on at the end of the project, but must be included from the beginning:

> It is therefore crucial that Inuit express their views and concerns before research agendas are unilaterally set according to southern priorities and interests. In addition, land claims implications and Inuit Qaujimajatuqangit, or Inuit societal values, need to be brought to light if they are to influence decision-making processes. In Nunavut, bringing both the holders of community-based and science-based knowledge around the same table is the most conducive approach to achieving this goal. (NTI 2005, np)

By including IQ in at the beginning of decision-making processes, these discourses ensure that Western science cannot become the overarching system into which IQ gets plugged. This pushes back against the hierarchical processes described in Chapter 7.

As a result many of the Inuit pages describe the outcomes of consultation and collaboration in very different terms from those that might be described by a Western scientist that is primarily interested in producing an accurate final report. The ICC site describes consultation as a process designed to bring about mutual commitment, respect, and trust-building, while the ITK site stresses the importance of consultation as a process that produces relationships between Inuit communities and scientists. All of these concepts and practices can

be thought of as mediating concepts and practices that ensure that research is not though of as a final report into which Inuit should be integrated, but instead an equal and respectful relationship that Inuit and qallunaat build together. The ITK further stresses that this is an issue of social justice, and that it is important to take the time to build common understandings rather than to rush to solutions to problems (Audla nd). In this instance, the ITK is utilizing a concept steeped in Western critical theory – social justice – to push for a form of research more based on Inuit consensus-building practices. On another page ITK president Terry Audla goes one step further, urging scientists to reverse their views of IQ when they come into Inuit communities. Rather than viewing Inuit as being useful to scientific projects, scientists need to respect those Inuit by asking how their scientific work might be useful to the Inuit community. He states:

> I urge scientists not to come to our communities and ask how our knowledge can be integrated into science. We have invited you into our regions to help us. We are grateful for that. But maybe Inuit need to turn the paradigm around as well, at least from time to time. So help us find ways to integrate your knowledge into the Inuit way of seeing the world. Help us turn the question around. This way, science can indeed be relevant to us. (Audla 2014, np)

Profoundly, this argument both deconstructs representations of Western science as universal – it can only be applied to the Arctic if Inuit deem it useful – and also reverses the epistemological hierarchies described in Chapter 7 – Western science should be plugged into IQ, not the other way around. This opens up space for less hierarchical, more pluralistic, and more regionally varied forms of knowledge production.

*8.3 Adaptation and Resiliency*

This dissertation began with a description of dominant international orientations toward the environment, arguing that a strong emphasis on adaptation and resiliency has prevented more transformative approaches to reacting to climate change from taking root. Adaptation discourses

have de-politicized climate change by responsibilizing communities rather than governments for reacting to climate change; emphasizing the importance of technical solutions to environmental shifts; describing climate change as an inevitable process; and emphasizing the empirical causes of climate change over its socio-economic causes (Evans and Reid 2014). By depoliticizing climate change at international and national levels (and containing the social and political outcomes of climate change within the local level), these conceptualizations of adaptation and resiliency have further reinforced the normative power of Western science as a reductionist and purportedly objective epistemological system.

In this section I argue that Inuit have used digital spaces to rework the concepts of adaptation and resiliency, to re-politicize them. In the process they have opened up space to demonstrate the need for epistemological systems – like IQ - that can grapple with the seamless interconnection of environmental, social, and normative issues contained within climate change. This has had the effect of re-working and reversing several of the epistemological hierarchies described in Chapters 5 – 7. In particular concepts of adaptation and resiliency have been employed to increase support for the in situ community transmission of IQ, to push back against depictions of Western science as universally applicable to the Arctic, and to demonstrate how qallunaat are in need of ideas contained within IQ. Through these practices Inuit have used adaptation and resiliency as mediating concepts that pluralistically bring together IQ and Western science.

First, Inuit have used the notion of adaptability to call for the creation of digital tools supportive of Inuit livelihoods and IQ. Participants described how they wished that there were more mobile games in Inuktitut, to support the language, and how schools need more computer applications for teaching IQ. Zach was particularly excited about the possibilities of storing IQ in

a digital form, and felt that this could be used to prevent the loss (or, in some cases, recover) of IQ. Some of this knowledge can remind Inuit of how they have historically survived in the Arctic, and both inspire and equip them to survive changes in the contemporary world. He described this in the context of traditional clothing:

> And then today I'm complaining that we Inuit used to try to survive in this land. We even learned everything, what the land has to offer. Make needles out of bones and got thread out of caribou sinew and women stitched the clothing and we ate the meat and we used the skin for clothing. Seal skin boots. […] Yeah, who got that idea, that amazes me. How did they learn to stitch these waterproof kamiiks? Today we don't really think about it because we could just go to the store and buy rubber boots. All these... and then, what happened? What's Inuit belief, what happened after Christianity came? We call it assimilation... all these... that's my interest. So, if somebody could program that, we could learn it. (Kunuk 2016)

He went on to describe many other forms of knowledge that might be recorded online, from collecting fresh water on the land to navigating ice safely. While he recognized that there are limits to just how much one can learn without going out onto the land, he nevertheless believed that the Internet offers great potential. He also reaffirmed the feelings that the Internet could be used to improve interactions between Inuit across different areas of the Arctic. He said:

> I think it should all be shared because everybody's got a different way of doing things, and it's very interesting. Over the years, I've noticed, even, by the way in the Arctic, that the clothes system is different. In Copper Mine they have different parkas, in Igloolik they have different parkas, in Igloolik they have different parkas. And you could just tell their dialects just by looking at their clothes. It's amazing. It's all there. Yeah, we should all share it and learn how do you do this? We do it this way, you do it that way, that's interesting. (Kunuk 2016)

The DID website already offers many of these advantages, although Zach underscores the importance of more funding, programmers, and infrastructure to make these types of projects truly effective. By connecting these needs to notions of climate change adaptation, Inuit may be

able to gain improved access to such resources.

More immediately, though, some Inuit have already begun adapting southern-produced websites and transforming them to be supportive of IQ. The Nunavut Hunting Stories of the Day Facebook page was widely described by my participants as an example of how Websites could be adapted to encourage Inuit to go out on the land more often, and to learn IQ-based practices. This site allows Nunavummiut to share stories and photographs of their recent hunting trips. My interview participants described how they felt the site facilitated knowledge exchange and helped to motivate youth to get out on the land. From a practical perspective, the site allows Inuit to offer one another technical advice on topics ranging from equipment repair to hunting and butchering techniques. Francis, for example, described how he learned to repair newer models of snowmobiles from the page, while another participant said that they learned about caribou skinning. By storing IQ in a highly shareable and durable format, Inuit using the page ensure that IQ itself becomes more resilient – and that Inuit can access IQ to make themselves more resilient and adaptable in the face of climate change.

The page also provides emotional and normative support for hunting as an activity, which encourages Inuit to go out and hunt. This ensures that their interactions with hunting do not end with the acquisition of representational forms of knowledge, but also include the embodied forms of learning encouraged within IQ. Francis explained that the page "gives us perspectives as to what and who is doing what, so it gave us the perspectives in the North that everyone is doing pretty much the same thing. Like, subsistence hunting and the same equipment, the same rifles, pretty much." This produces feelings of solidarity, which allows Inuit to resist pressure from anti-hunting groups. It also facilitates knowledge exchange across different regions, which helps to rejuvenate lost IQ. For example, Francis explained how Inuit from Igloolik can teach others

about walrus hunting, since it is a local speciality, while they learn about caribou hunting from Inuit in other regions, such as Kivalliq. This regional regeneration of IQ through digital means directly supports Inuit in their adaptation to the changing hunting environment. It also reverses some of the in situ erosion of IQ described in Chapter 5, since it is an example of using digital technologies to encourage Inuit to put those technologies down more often and instead go out on the land.

The Facebook Sell/Swap page is another example of how digital technologies are being used to support community resiliency and IQ-based practices. Iglulingmiut use the page to sell items to one another at much more reasonable prices than can be found at local stores. These products are often produced through culturally-based practices, such as carving and sewing. The site provides a space that valorizes these activities. On other occasions Iglulingmiut use the site to share country food, for free, with the community. This is a direct extension of historical, cultural sharing practices, in which hunters widely disperse meat to elders and family members within the community. These practices not only reinforce Inuit social norms, but they also encourage embodied interactions in the form of economic exchange or the sharing of culturally resonate foods. These practices once again reinforce social practices that increase community resiliency and support the in situ transmission of IQ.

Second, Inuit have depicted their own adaptability in terms that undermine representations of Western science as universal. Both processes help to open space for more pluralistic epistemological engagements with global environmental change. Inuit sites consistently argue that the onus of climate change action should not be placed on Inuit communities, since they are already highly adaptable. These arguments often start with a description of the long history of Inuit adaptation in the Arctic, and a description of how

adaptation, or *qanuqtuurunnarniq*, is a fundamental part of IQ and Inuit life. Websites describe how Inuit are "adaptable and strong" because they have been adapting to a hostile and dynamic environment for a very long time (ICC 2014, iii), and how Inuit "have often responded well to change over the centuries by adapting in ways that allowed us to maintain our core values and traditions while at the same time incorporate [sic] some of the new things that came our way." (ICC 2011, 5) As ITK President Terry Audla (2014) describes it:

> Inuit traditional knowledge is adaptable and resilient, transforming over time as the world and landscape around us changes. It is also highly practical, pragmatic and applicable – thousands of years of survival have depended on it. As proof, after millennia, Inuit are here today – I am here today – because our knowledge taught us how to survive and thrive in one of the most challenging environments on the planet. (np)

These descriptions represent Inuit as active players in the Arctic environment, who have always used IQ to adapt to change. Inuit are not only observers of climate change, but are "active, adaptive players in the modern world" (Audla, nd, np).

Inuit combine this capacity of IQ to adapt with discourses of livelihoods to argue that Western science should *not* always be applied to environmental management in the Arctic – thereby working against the universality of science. These arguments are closely tied to hunting. Inuit organizations argue that hunting animals is something that Inuit have *always* done, and that they realize the importance of engaging in hunting sustainably so that future generations can enjoy country food (Chambers 1988, 1989). The hunting relationship is a key mechanism through which Inuit know and care for animals (Young 2016). By emphasizing that they observed climate change earlier and more often than Western scientists, Inuit argue that they are uniquely capable of effective forms of environmental management. By using IQ to engage in hunting and environmental management, Inuit guarantee both the resiliency of both animals and

Inuit culture:

> The continued transmission of traditional harvesting skills and the sharing of country foods indicates how essential hunting is to Inuit life. The 'economy of sharing' remains central to Inuit livelihoods and includes the oral transmission of knowledge, family ties, community events and subsistence activities. Access to country foods remains crucial to Inuit food security and culture. Regional government programmes are specifically designed to: bring country food to individuals who are unable to hunt, do not have an active hunter in their households or whose health would be improved as a result of access to country foods including elders, pregnant women and single mothers; aid in the rehabilitation of troubled youth and prison inmates; and facilitate 'on-the-land' youth and elder camps for the transmission of harvesting skills." (Kendrick 2013, 415)

Digital representations of IQ as a system uniquely capable of adaptation, in the face of climate change, thereby discursively and materially strengthen the power of IQ relative to Western science in the Arctic.

Inuit sites also represent polar bears as adaptable partners in their pursuit to respond to climate change. This offers a vision of non-human animals as active agents that is very much rooted in IQ-based ontologies. Polar bears are often depicted as being just as adaptable as Inuit, since they too have long had to adapt to an unpredictable Arctic environment (e.g. Walton 2007). The bears themselves are represented as active participants in the adaptive management regimes being implemented within Canada. These regimes are described as being responsive enough to continue to counteract any future problems that bears might face (e.g. Audla 2013b). The Canadian government is described as a critical partner within these co-management programs, and Inuit sites argue that outside sources should not interfere with this localized cooperation (Young 2016). The ICC (2010) site described how "knowledge sharing makes a significant and rich contribution to the development of Inuit-specific, appropriate, effective and forward-looking Inuit-specific policy related to climate change adaptation and mitigation strategies." (7) They

argue that Inuit need to be involved in all forms of adaptive planning given their unique capacities to adapt in the Arctic (ICC 2010, 2014). These discursive practices represent IQ as more applicable to Arctic issues than Western science, and disrupt the representation of Western science as a universal epistemological system that can be easily plugged into any local context.

Finally, Inuit use digital spaces to argue that IQ should even be extended to some southern contexts – thereby reversing the epistemological hierarchy described in Chapter 7. They argue that it is qallunaat society – and Western science – that has been slow to adapt to the realities of climate change, not Inuit and IQ. The Inuit sites argue that this must change, thereby politicizing climate change as an issue toward which qallunaat must epistemologically re-orient themselves. Several pages emphasize that Inuit observed many indications of climate change much more quickly than Western scientists. Some Inuit go farther, arguing that Western science does not even have the capacity to truly understand the amount of adaptation required to survive in the Arctic. As the NTI (2005) site states:

> Adapting is not necessarily a conscious effort to respond to conditions now brought upon because of climate change; it is just something that you do. Further, climate change adaptation focuses on human populations, whereas Inuit are primarily concerned about the impacts climate change has on wildlife populations and their food sources. In other words, climate change is more of a pressing issue because of its impact on Arctic wildlife and its potential to accelerate the loss of the traditional Inuit hunting culture and the associated socio-economic importance of country foods, than it is an issue through its impacts on areas such as infrastructure. Lastly, in very broad terms, Inuit are concerned for the well-being of future generations whereas science is project-driven and government is mandate-driven. The challenge therefore lies in focusing research on the challenges that tomorrow's youth will be facing because of climate change. (NTI 2005, 3)

This quote argues that adaptation is only an academic concept for many qallunaat, which prevents them from grasping the enormity of the situation. Qallunaat also utilize too reductionist

of an approach toward climate change. This prevents them from understanding adaptation as a process that brings together both humans *and* non-human animals, and as a process that necessarily exceeds temporally discrete scientific projects. This narrative demonstrates why Inuit are already *more capable* of adapting to climate change than the scientists and policymakers that often encourage them to adapt. These actors have little conceptualization of how to survive in the Arctic, and are not well-equipped to drive the research and policy agenda meant to react to climate change impacts.

However, Inuit sites argue that qallunaat have an ethical opportunity to react to global environmental changes, and also that it is in their self-interest to do so. Sites focus not only on climate change, but also on the high levels of contaminants present in the Arctic. For example, discussions of mercury on these sites focus on the dynamics of long range transport and how solutions require action from the originators of the mercury. Published quotes and speeches from Inuit leaders emphasize how inaction is unjust, given that it is not the fault of Inuit that this mercury is entering their ecosystem (e.g. Moorhouse 2012). These speeches often also invoke notions of food security to argue that Inuit face disproportionate risks associated with mercury poison due to their diet, to which they have a right (Simon 2011). However, they also argue that the effects of these pollutants will eventually spread back out to affect southern societies. They point out that other countries should act because their populations will soon "suffer the same health effects from mercury that Inuit do." (Simon 2011, np) For these reasons mercury pollution "needs to be brought to the attention of international policy makers – in particular to the governments in the source regions of mercury remissions." (Simon 2011, np)

Parallel arguments are made about climate change. Inuit sites recognize that "[c]limate change is global in nature but local in consequence." (ICC 2008, np) This "global nature of

climate change and its ramifications mean that the response requires more than local adaptation" (ICC 2008, np). And, in fact, organizations like the NTI emphasize that it is the south that needs to adapt the most – it argues that it is the "people's whose activities are mainly at the source of human-induced climate change should be the ones doing the bulk of the adapting (to minimize the changes and impacts that Arctic populations end up dealing with firsthand)" (NTI 2005, 6). The site recognizes that this is counter to common thinking, but that this message nonetheless "has to be conveyed to the rest of the world" (NTI 2005, 6). In this manner the Inuit sites are essentially using the discourse of adaptation to tell southern societies that it is their ethical duty to transform their economic activities such that they stop negatively impacting the Arctic. They also connect adaptation to the self-interest of southern societies, by invoking descriptions of how the Arctic is a predictor for climate change effects in the south. The ICC (2008) argues that climate change "requires a concerted and visionary international effort which reflects the understanding that the Arctic ecosystem is the indicator of global environmental health," while the NTI (2005) emphasizes that "what happens in the North will affect their [southerners'] lives and they too will have to adapt to climate change" (6).

IQ can offer qallunaat epistemological resources as they start to engage in their own struggles of adaptation and resiliency in the face of environmental change. As a result qallunaat need to open themselves up to learning more from Inuit about adaptation. Inuit represent themselves as an international people, given their presence across four countries, as eager for international cooperation, and as wanting to share perceptions based in IQ (Eegeesiak 2016). Inuit organizations point out that Inuit are valuable and knowledgeable partners in the global struggle against climate change, and can help southern societies react to the environmental *and* socio-political effects of environmental shifts as they begin to experience them. This goes

beyond opening space for IQ within Arctic policy, to opening up pluralistic spaces to discuss IQ as it might apply to southern attempts at adaptation. This strongly reverses the epistemological hierarchies described in Chapter 8, and produces digital spaces in which Inuit-qallunaat encounters might produce dramatic transformations in how global societies think about their relationship to the environment.

*8.4 Conclusion*

In this chapter I examined how Inuit have used the Internet to develop mediating concepts and practices that open space for more pluralistic engagements between IQ and Westerns science. In the process they have used these mediating concepts and practices to intervene in the epistemological hierarchies described in Chapters 5 – 7. First, Inuit have developed and digitally broadcast norms to guide practices of consultation and collaboration. These norms bring Western democratic notions of inclusion and participation together with Inuit principles of consensual decision-making and respect. Inuit have utilized discussions of consultation within visible, digital spaces to disrupt each of the hierarchies that I discussed in this dissertation. Organizations like Kingulliit have used the mediating practice to acquire resources to improve their ability to use digital technologies to support the transmission of IQ. Other Inuit organizations have developed diverse descriptions of the consultative authority of IQ, and in doing so they have resisted the flattening of the knowledge system. By depicting collaboration as a process that necessarily brings IQ and science together on equal footing, they have also forcefully rejected the subordination of IQ to science. Second, Inuit have engaged in complex negotiations over notions of adaptability and resiliency, to re-appropriate those terms as mediating concepts. Each of these terms resonates strongly with qallunaat because they are rooted in current scientific and policy responses to climate change. As described in Chapter 2, these terms have often been

employed in a highly reductionist and technical manner, such that there use shuts down new forms of environmental imaginaries. However, Inuit have reframed these concepts to relate them to the IQ principle of qanuqtuurnnarniq. In doing so they demonstrate how IQ has historically enabled Inuit to be highly adaptable and resilient in the harsh environment of the Arctic, and has more recently enabled Inuit to be *more* responsive to climate change than their qallunaat counterparts. In fact, Inuit Websites argue that part of the south's inability to adjust to climate change is precisely its reductionism, and that qallunaat need to learn more seamless ways of thinking from IQ. In making these arguments, Inuit have used the concept of adaptation to reverse the hierarchical relationship between IQ and Western science. Inuit have successfully developed each of these mediating tools to open space for less hierarchical forms of interepistemological dialogue between Inuit and qallunaat.

## 9. Conclusions: What Potentials for Digital Encounters?

In this dissertation I have asked what potentials and limitations the Internet, as a complex set of hardware, software, and practices, offers for engaging in transformative encounters across different epistemological systems. As a point of departure, I outlined how climate change offers a fundamental challenge to Western scientific thinking and acting toward the environment, and that this challenge has left many thinkers calling for new epistemological resources for grappling with global environmental shifts. They have argued that the reductionism, technicity, and objectivity of Western science have reinforced a tendency to treat climate change as an issue requiring technical, rather than political or social, problem. As a result Western science has not offered many resources for grappling with the capitalist logics that have produced climate change, nor has it offered socio-political imaginaries or normative guidelines for positively transforming global socio-ecological systems. These failures have opened some space for the emergence, on the international stage, of new ways of thinking and acting toward the environment. Western researchers and Inuit have suggested that *Inuit Qaujimaningit* (IQ), or the Inuit knowledge system, may offer critical resources for an international community seeking to change their orientation toward the environment. Critically, IQ seamlessly blends environmental, social, political, and normative knowledge. It can offer needed perspectives not only on the state of the environment, but also on how global societies might come together to collectively respond to environmental crises. As Inuit leader Sheila Watt-Cloutier argued, the "Inuit view and approach to consensus building and healing, the essence of *Inuit Qaujimajatuqangit*, is relevant to a world driven by self-interest." (Watt-Cloutier 2002 qtd in Johnson 2014, 168)

Despite calls for new ideas and the epistemological resources offered by IQ, Western science has largely retained hegemony within national and international policy circles. In

Chapter 2 I described the historical relationship between Western science and IQ as one defined by epistemological colonialism and hierarchy. This relationship is strongly defined by the broader colonial relationship between Inuit and the qallunaat that first began colonizing the Arctic in the late 17th century. This colonial history has produced many contemporary problems for Inuit communities, ranging from disconnection from land and culture to high incidences of health issues and lack economic opportunity. Many of these issues also function to disconnect Inuit from the practices that allow them to transmit IQ to new generations, and to deny Inuit the opportunities to use IQ to shape governance practices in the Arctic. Although Inuit have forcefully pushed for better inclusion of IQ in government, this inclusion is often executed in a highly assimilatory manner. This ensures that IQ is always reduced, flattened, and reframed, such that it can be folded within a broader Western scientific framework, before it is given any chance to affect policy. This process is not only defined by epistemological violence, but it also guarantees that the differences between IQ and Western science are never highlighted to broader audiences. As a result these processes foreclose the possibility of transformative encounters between the two epistemological systems. Despite this consistent marginalization of IQ, though, Inuit continue to call for greater international cooperation and epistemological pluralism on issues of environmental change.

I asked whether digital spaces offer Inuit new political opportunities for challenging this hierarchical relationship between IQ and Western science. In Chapter 3 I developed a theoretical framework for engaging with this question. After reviewing a range of geographic theories of digital politics, I find that they do not do a sufficient job of theorizing both the negative and positive dimensions of knowledge politics. Instead, I turn to Simon Bignall's (2010) combination of Deleuzian and postcolonial theory to understand digital encounters between Inuit and

qallunaat. On the one hand, Bignall's work offers theoretical tools for understanding how different epistemological systems become sedimented within particular, and sometimes hierarchical, relationships. Striations in the material and socio-political systems in which these knowledge systems exist have produced molar forms of domination that ensure that IQ remains subordinated to Western science. This theory helps me to understand whether digital technologies and practices are striated in ways that reproduced these same epistemological hierarchies. On the other hand, Bignall also describes mediating concepts and practices as tools that individuals can use to break down these hierarchies. These concepts and practices can be designed such that they are important and understandable from within different epistemological system, but also so that neither system fully accesses all aspects of the concept or practice. This ensures that individuals can work together to build common notions, but also understand that, to some degree, their perspective is incommensurable with the other. This theory of mediating concepts and practices helps me to understand how Inuit use the Web to decrease the hierarchical relationship between IQ and Western science, make discussions of the Arctic environment more pluralistic, and potentially increase the likelihood of transformative encounters between Inuit and qallunaat. Bignall's (2010) framework has the additional benefit of having been developed in a postcolonial and indigenous context, meaning that it is particularly attentive to the subtle assimilatory processes that may emerge from the use of mediating concepts. This theory thus gives me a very powerful framework with which to understand how Inuit engagements with the Web simultaneously reproduce epistemological hierarchies and work against them.

In Chapter 4 I operationalized these conceptual interests by developing a set of four research questions, along with a mixed-methods approach to answering those questions. My project asked:

1. How is Arctic environmentalism articulated online?
2. What types of mediating concepts are produced online, that productively meld together Inuit and qallunaat views to produce common notions of the Arctic?
3. In what ways are the digital spaces of the Internet striated, such that they discourage the production of common notions and reproduce epistemological hierarchies?
4. What specific attributes of the Internet contribute either to the production of mediating concepts or the production of striated spaces?

I then designed a unique multi-site, mixed-methods, and inductive methodology for answering these questions. Data came from two sets of sites. First, I identified and downloaded Web pages from fifteen different Websites. I specifically collected pages that mention the terms 'Canada', 'Arctic', and either 'polar bear', 'seal', or 'whale'. I also identified social media accounts related to these Websites. Second, I performed fieldwork in the Inuit community of Igloolik, Nunavut, Canada. Within Igloolik I performed semi-structured interviews, participant observation, and archival research at the Arctic College's Oral History Project. These two different sets of data offer slightly different types of evidence about the digital knowledge hierarchies that I wanted to explore – digital material provided insights into how epistemological hierarchies have visibly emerged online, while interviews with Inuit described how hierarchies render certain ways of knowing invisible even before they can emerge online. I developed a novel, mixed methods approach for analyzing these datasets, which included computational analysis, critical discourse analysis, and qualitative content analysis. I used this methodology to build a theory of how digital technologies and practices are used to simultaneously extend and work against epistemological hierarchies.

Chapters 5 – 7 described striations of the Web that extend the hegemony of Western

science over IQ. First, in Chapter 5 I explored how the materiality of the Web intersects with the colonial and economic conditions of the Arctic to erode social practices that transmit IQ within Inuit communities. The lack of a robust communications infrastructure in the Arctic ensures that Internet speeds are extremely slow, and that Internet use is centralized within homes and within communities. These factors lead Inuit to stay in their homes more often and to not travel out on the land, which decreases the social and embodied practices critical to the transmission and acquisition of IQ. The representational model of knowledge transmission built into digital infrastructures further ensure that use of technologies leads Inuit to engage in fewer experiential forms of learning. Taken together these processes decrease the quantity and quality of time that Inuit spend learning from one another and from embodied time in the Arctic environment.

Next, Chapter 6 argued that Western science has comparatively more access to digital spaces, and particularly to more visible digital spaces, than does IQ. This differential access is produced by a range of material conditions and digital norms. The lack of communications infrastructure in the Arctic has produced very high costs, which has discouraged Inuit from adopting multimedia formats that are not as conducive to the storage of IQ-based material. Digital norms of engagement often encourage antagonistic interactions and a reductive or segmented approach to discussions, both of which make the Internet less conducive to spreading IQ. This has produced an epistemological hierarchy in which Western science is represented as a visible and global knowledge system while IQ has remained relegated to specialized Arctic platforms. This makes Inuit less able to choose to make IQ visible to broad audiences on the Web, and reduces the possibility of pluralistic exchanges between Inuit and qallunaat. Finally, when IQ is represented more widely within digital spaces, it is often first reduced first.

In Chapter 7 I outlined a set of transformative practices that flatten IQ to a set of

empirical observations that can be fit within a Western scientific framework. In particular I explored representational politics that reduce the Arctic environment to a set of material flows, citation and linking practices that normalize Western scientific norms of knowledge production, and knowledge politics that frame Inuit knowledge as a form of crowdsourced empirical observation. These practices paint Western science as a global or universal framework into which local forms of knowledge, such as IQ, can be plugged. This reinforces the hegemonic power of Western science within digital spaces, and ensures that IQ is either never heard at all or only heard as translated through highly southern logics.

Despite these processes that reduce the possibility of transformative Inuit-qallunaat encounters, Inuit have used digital spaces to work against epistemological hierarchies. In Chapter 8 I argued that Inuit have found ways to develop mediating concepts and practices that allow them to open space for more epistemologically pluralistic conversations about the Arctic environment. Mediating concepts and practices are topical areas of conversation or rules of conduct that help to position different epistemological systems in relation to one another such that both systems equally access resulting conversations. These concepts and practices are designed to facilitate the production of common notions about the world across the different epistemological systems, by helping individuals from each system to better listen to individuals inhabiting the other system. However, they also highlight the incommensurability of the two systems, to ensure that neither system is simply assimilated into the other. I examined two sets of mediating concepts and practices – consultation and collaboration, and adaptability and resiliency. Inuit have designed the mediating practice of consultation in such a way that it brings together Western democratic principles with IQ-based principles of aajiiqatigiingniq to produce norms of pluralistic knowledge exchange and consensus-building. Inuit have used calls for

greater consultation abilities to strengthen IQ within communities, highlight the complexity and irreducible parts of IQ, and demonstrate the incommensurability of IQ with Western science. Inuit have reframed these Western scientific concepts to incorporate the IQ-based principle of qanuqtuurunnarniq, to argue that it is qallunaat - and not Inuit - that need to learn to be adaptable and resilient in the face of climate change. In reframing these terms Inuit have made the more political – rather than technical – and highlighted the relative strengths of IQ for guiding political and normative transformations in response to environmental shifts. Inuit thus use these mediating concepts not only to disrupt representations of Western science as universal, but also to highlight forms of knowledge that can only be gained through IQ.

This dissertation has thus offered a complex examination of how digital technologies and practices shape knowledge politics between IQ and Western science. In response to Question 1, I have found that representations of the Arctic are highly stratified across the Web, with highly reductionist representations being the most common. I found that, in describing the Arctic environment, the most visible sites on the Web focused on either a highly material and biological description of environmental destruction, or on issues of economic consumption related to the environment. These representations of the Arctic were most often explicitly or implicitly framed within a Western scientific understanding of the environment. Practices including the use of scientific citation practices, the inclusion of a greater number of quotes from Western scientists, and links to scientific reports helped to reinforce this Western scientific view of nature. Sites associated with Inuit organizations did a better job of representing the Arctic in the more seamless manner associated with IQ, with descriptions of the environment blending together discussions of community life, indigenous issues and politics, culture, livelihoods, hunting, and conservation. While these sites did discuss the concept of IQ more often, they did not always

make IQ itself very visible. I found that the representational nature of the Internet, lack of access to certain multimedia formats, the prevalence of written English, and a range of other digital social norms and knowledge politics all minimized the possibility of IQ strongly emerging online.

In response to Questions 2 and 3, I identified two sets of mediating concepts and practices – consultation, on the one hand, and adaptation, on the other – that have emerged online despite a wide range of material and discursive striations. Striations reinforce epistemological hierarchies even before Inuit have a change to digitize IQ – they begin by eroding practices and spaces critical to the transmission of IQ within Inuit communities. By weakening the embodied acquisition of IQ, these material striations of how one accesses and interacts with technology ensures that IQ does not emerge on the Web in the first place. Another set of striations makes it comparatively difficult for Inuit to fully participate and express IQ within digital spaces, should they want to do so. And finally, a third set of practices transform IQ such that it is more easily assimilated into southern epistemological frameworks. These processes make it difficult to produce interepistemological discussions of the Arctic – instead, one mostly sees either entirely Western scientific discussions, or Western scientific discussions of highly individualized observations made by an Inuk.

Despite these forces working against them, though, Inuit have found opportunities to develop mediating concepts and practices that strengthen IQ relative to Western science. Arguments for more rigorous practices of consultation have allowed Inuit to push for improved digital infrastructures and to encourage more pluralistic and equal encounters between IQ and Western science. Inuit discussions of the concepts of adaptation and resiliency have highlighted the deficiencies of Western science as a system capable of engaging with the normative and

political dimensions of climate change, and therefore highlight the incommensurability and value of IQ. Importantly, these mediating concepts and practices often still fail to fully represent IQ on the Web – it is quite possible that, as many of the elders' interviews point out, it is not possible to fully represent IQ outside the embodied spaces of the Arctic landscape. Nevertheless, they often push for complex relationships between Inuit and qallunaat that encompass both the digital and material spaces of the Arctic. They describe consultation and adaptation as processes that might begin online, but should not end there. In the words of Okalik Eegeesiak (2014), they encourage relationships between Inuit and qallunaat that allow everyone to keep "one foot in the space age and one in the snow age." (5) Of course, these mediating concepts and practices have not produced perfectly pluralistic spaces of encounter, and the digital spaces I examined often include messy combinations of striations and mediating tools.

Regarding Question 4, I found that a wide range of attributes of the Web are interacting in complex ways to produce these knowledge politics. Issues of accessibility and the situatedness of digital infrastructure within the pre-existing and colonial histories and power relations of the Arctic have produced many of the technological striations that erode IQ within communities. Inuit organizations like Kingulliit have used the mediating concept of consultation to work against some of these dimensions of digital technology use. They have used calls for consultation to acquire funding that allows them to design digital infrastructure better able to facilitate the transmission of IQ. This allows them to shape accessibility in a manner that, ideally, does not reproduce epistemological hierarchies. In other words, they are using this mediating concept to design an Inuit-oriented Web, rather than to fight for simple inclusion in a qallunaat-oriented Web. The situatedness of the Web within qallunaat societies has also produced many of the digital structures, practices, and norms that make it difficult to express IQ online, or work to

assimilate IQ into Western scientific frameworks. These include antagonistic and partisan norms of discussion, tendencies toward compartmentalization and reductionism within conversations, the production of digital formats that encourage representational knowledge politics, and a stress on empirical forms of knowing. Finally, the customizability and interactive connectivity of the Web have allowed for these knowledge politics to emerge. The connectivity of the Web is a prerequisite to any encounter between Inuit and southern qallunaat. The customizability of the Web has enabled the dissemination of Western models of knowledge production through digital networks, but it is also critical to the ability of Inuit to reframe southern concepts and practices – such as consultation and adaptation[58] – in such a way as to break down epistemological hierarchies.

This dissertation offers empirical, methodological, and theoretical contributions to geography and beyond. It is one of the first geographic studies to provide a comprehensive and empirically-grounded examination of indigenous engagements with digital technologies outside of the context of institutionally-initiated ICT4Development projects. Most digital geographies work has focused quite narrowly on the digital practices of elite users in the Global North (Caquard 2014; Young 2016). In rare occasions researchers have examined the adoption of digital technologies in the Global South, but have taken either an anthropological view – examining technology effects only *within* communities – or ICT4Development perspectives – examining how international organizations bring technologies *into* communities to achieve (often Western) development goals. Along the way, one of the early goals of PGIS, working with indigenous communities to transform technologies to be better adapted to indigenous knowledge systems, has been lost. This dissertation offers a case study of how Inuit have attempted to

[58]In the case of adaptation and resiliency, the durability of Web-based data may help to strengthen the IQ system – so long as IQ does not slowly become reduced to only digital representations.

transform Internet-based platforms to better support the transmission of IQ to engage with qallunaat to achieve their own political goals. This case study highlights the dangers and benefits of this digital approach to indigenous politics, much as past work has highlighted the tensions inherent to indigenous appropriations of GIS. I argue that studies like this are critical to ensuring that geographic work with indigenous peoples does not become 'stuck' at the stage of desktop GIS, and therefore extend colonial representations of indigenous peoples as technologically 'undeveloped'. Indigenous peoples are constantly adapting new technologies to support their lives and politics, and the discipline of geography should recognize this. In this way, the project also pushes forward geographic understandings of the nature of indigenous knowledge as they are extended through digital means.

This project offers important empirical descriptions of how digital technologies are shaping international discussions and politics related to climate change and environmental management. It answers Buscher's (2012; see also Buscher and Igoe 2013) call for greater research into what he calls Nature 2.0, or the ways that conservation politics are being extended into digital spaces. This research describes how digital environmental politics are largely structured by Western epistemological standards, to the exclusion of other knowledge systems. If it is true that Western science remains insufficient at grappling with the political and normative implications of global climate change, as argued by the literature reviewed in Chapter 2, then this is a large limitation in the types of environmental politics that can easily be fostered online. Examples of how Inuit have employed digital technologies to produce mediating concepts is critical to the development of other tools and techniques to broaden the environmental imaginaries and possibilities of the Web. My theoretical and methodological approach can easily be extended to examine how other indigenous and non-indigenous epistemological systems have

emerged in digital spaces outside of the context of the Arctic, to reach better understandings of the global knowledge politics of climate change.

This study also developed an innovative methodological approach to studying digital politics. Many digital geographies project employ exclusively Web-based methodological approaches, instead of combining those approaches with traditional, qualitative fieldwork. Instead, I developed a unique combination of computational and qualitative analysis techniques to blend digital and field-based data sources. My integration of digital humanities methods like topic modeling and critical discourse is new within digital geographies research, and proved strong at analyzing large datasets while retaining the nuanced analytical capabilities of CDA. My further integration of field-based interviews allowed me to examine not only material that is *present* on the Web, but also content that remains *excluded.* This methodological approach was critical in revealing how the epistemological and material foundations of digital technologies produce complex absences across the Web. Neither an exclusively Web-based nor an exclusively field-based methodology alone could have revealed the complex yet subtle absences that shape these digital knowledge politics.

However, this framework can also be improved through the incorporation of additional geographic methods. While my study focused explicitly on geographic and environmental imaginaries of the Arctic, it might be expanded to include digital imaginaries of other regions of the world. Such an expanded study might employ new GIS-based analytical and geovisualization approaches to explore regional differences in knowledge production, representations of the environment, and more. My methodology could also be strengthened through incorporation of more indigenous methods. For instance, my analysis was all performed in English – an improved methodology might incorporate both computational and qualitative analysis of digital Inuktitut

material. Fieldwork could be extended to examine the actual digital media production and translation processes that Inuit organizations engage in to produce material online, as well as to longer-term ethnographies of individual consumption of digital content by Inuit. It should also extend to fieldwork with other participants in Arctic-oriented digital conversations – the qallunaat scientists, politicians, and general digital users interested in Arctic environmental change. Examinations of gendered and age-based differences in Internet engagement would also extend this project in important ways. By broadening and deepening my methodology, there is an opportunity to produce a much larger project for understanding the complex dynamics of epistemological politics across the Web.

My research extends geographic research into digital inequalities and knowledge production. I offer a theoretical framework for analyzing how historical and material inequalities intersect with digital practices and norms to shape the types of knowledges that can be made visible within digital spaces. The colonial history of the Arctic has shaped infrastructural development and access to hardware and software in ways that not only exclude Inuit from digital participation, but also shape *what types of participation* are available to *which Inuit*. The effects of these material processes are exacerbated by a wide range of digital norms and practices which further minimize the relative ability of Inuit to fully express IQ-based perspectives within online spaces. This analysis pushes theorizations of the Web beyond issues of digital divides and lags to questions of epistemology and colonialism. In doing so I move past current focuses on empowerment and marginalization to the question of the co-production of knowledge across epistemological difference. This allows my project to offer important insights into the limits of the connective and transformative capabilities of digital technologies.

In doing so I also push a range of theoretical questions, first posed within Critical GIS

literature, forward to the digital geographies research agenda. From past work on feminist and qualitative GIS, I extend questions about the connections between digital form, digital practice, and ways of knowing. I have argued that digital infrastructure and practices strongly reinforce epistemological hierarchies that normalize Western scientific methods and knowledge. This raises questions, for example, about how the relationship between practices of neogeography, volunteered geographic information, and crowdsourcing and positivist science. Can we really understand crowdsourcing as a process that expands our understanding of different ontological and epistemological systems, as Warf and Sui (2010) posit, if that process tends to flatten knowledge into empirical data points that can be algorithmically aggregated following scientific guidelines?

From related research into community mapping and PGIS, I push forward questions about the nature of digital participation. In what ways does participation and inclusion within digital spaces open political possibilities, and in what ways does it extend colonial and neoliberal violence and hierarchies? What digital tools can be developed to encourage the production of mediating concepts and practices? What is the role of geographers, if any, in working with communities as they negotiate these emerging digital practices and technologies? My study provides one case study of how Inuit organizations have engaged the Web to fight against epistemological hierarchies, from which other communities might learn. It also provides some lessons for how policy research might be directed to better facilitate infrastructural development for indigenous communities.

Finally, I offer a postcolonial framework for analyzing digital knowledge politics. As I describe in Chapter 3, digital geographic research has often focused primarily on either the democratic or the disciplinary nature of digital politics. I argue that this binary approach is

particularly ineffective for analyzing the emergence of new technologies and practices within colonial and postcolonial contexts. As digital technologies continue to bring the Global North and South together, geographers will need increasingly sophisticated theoretical tools for understanding the limits and possibilities they provide for interepistemological dialogue. My research offers one initial set of theories for this work into the potential of digital practice for encouraging dialogue – both speaking and listening – across both spatial and epistemological difference.

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**Appendix I: Coding Schema**

Codes marked with an asterisk (*) are the 'default' code within a given family of codes. This means that this is the code selected if a theme falls within a family of codes but does not seem to fall within a more specific theme within that family.

-Activism/Lobbying/Politics Originating Outside the Institution
    -Collaboration [Act:Coll]
    -Description* [Act:Descr]
    -Environmentalist [Act:Env]
    -Indigenous [Act:Ind]
    -Organizations/Institutional Structure [Act:Org]
-Commmunity Life and Culture
    -Childcare [Comm:Child]
    -Demographics [Comm:Demo]
    -Description* [Comm:Descr]
    -Environment Symbols in Advertising [Comm:EnvSym]
    -Holidays [Comm:Hol]
    -Human Interest Stories [Comm:HumInt]
    -Popular Culture [Comm:Pop]
    -Movies and Photographs [Comm:Mov]
    -Social Problems and Cost of Living [Comm:Prob]
    -Sports [Comm:Sports]
    -Travel/Recreation (incl. parks, tourism, and zoos) [Comm:Trav]
-Development and Economy
    -Agriculture/Aquaculture [Dev:Agri]
    -Consumption [Dev:Cons]
    -Description* [Dev:Descr]
    -Development Projects [Dev:Dev]
    -Energy [Dev:Energy]
    -Extraction/Drilling [Dev:Extr]
    -Jobs [Dev:Jobs]
    -Shipping [Dev:Shipping]
    -Subsistence [Dev:Subs]
    -Sustainable [Dev:Sust]
    -Trade [Dev:Trade]
    -Training/Services [Dev:Train]
    -Transportation and Infrastructure [Dev:Trans]
-Education
    -Expeditions [Edu:Exp]
    -News and Reports [Edu:News]
    -Publications [Edu:Pubs]
    -Schooling* [Edu:Schools]
    -Traditional Knowledge [Edu:TK]
    -Western Science and Reseearch [Edu:Sci]
-Environment

-Change/Destruction (general) [Env:Change]
-Climate Change [Env:Climate]
-Conservation/Management [Env:Cons]
-Cryptozoology [Env:Crypto]
-Deforestation/Logging [Env:Deforest]
-Description* [Env:Descr]
-Disease [Env:Disease]
-Empathy [Env:Empathy]
-Endangered [Env:Endangered]
-Human Impacts [Env:Hum]
-Pollution [Env:Poll]
-Population Projections [Env:Pop]
-Seismic Testing [Env:Seis]
-Study/Monitoring [Env:Study]
-Weather [Env:Weather]

-Geography
-The Arctic [Geog:Arc]
-Geology [Geog:Geol]
-Places [Geog:Places]
-Planetary [Geog:Plan]
-Physical Geography [Geog:Phys]

-Governance
-Animal Rights [Gov:AR]
-Finance [Gov:Fin]
-Geopolitics and Military [Gov:Geop]
-Housing [Gov:Hous]
-Indigenous Rights [Gov:IndR]
-Institution/Bureaucracy [Gov:Inst]
-Job Creation and Training [Gov:Jobs]
-Law, Regulations, Judicial Rulings, and Criminal Justice [Gov:Law]
-Policy [Gov:Policy]
-Politics [Gov:Politics]
-Safety [Gov:Safety]
-Social Justice [Gov:SJ]
-Social Services (Miscellaneous) [Gov:SS]
-Sovereignty/Land Claims [Gov:Sov]

-Health
-Food [Health:Food]
-Healthcare [Health:Care]
-Mental Health [Health:Mental]
-Physical Health [Health:Phys]

-History
-Colonialism [Hist:Col]
-General* [Hist:Gen]
-Time/Calendar [Hist:Time]

-Hunting/Fishing/Whaling

-Cultural Importance [Hunt:Cult]
-Description* [Hunt:Descr]
-Destructive to Environment [Hunt:Destr]
-Food/Livelihood [Hunt:Food]
-Regulations and Management [Hunt:Regs]
-Rights [Hunt:Rights]
-Trade [Hunt:Trade]

-Indigenous Issues
-Connection to Land [Ind:Connect]
-Inuit Life (Holistically)* [Ind:Inuit]
-Reconciliation [Ind:Recon]

-Intensities
-Global/Historical Context [Int:GHC]
-Magnitude [Int:Mag]

-Internet
-Ads [Internet:Ads]
-E-Commerce [Internet:ECom]
-Social Media [Internet:Soc]
-Terms of Service [Internet:TOS]

-Language
-Bilingualism [Lang:Bi]
-Inuktitut [Lang:Inuk]

-Miscellaneous [I viewed these as generally uninformative for further analysis]
-Description of Technology/Code [Misc:Tech]
-General Internet Headers [Misc:Head]
-Generic Words [Misc:Gen]
-Uncategorized* [Misc:Uncat]

-People
-Names [People:Names]

**Appendix II: CDA Form**

Date Analyzed:
Date Published:
Title:
Author:
URL:
MALLET Theme:
Genre:
Multimedia:
Language:

| Contents (people and animals, organizations, objects, events, processes, topics) | Discursive Strategies (nomination, predication, argumentation, framing, intensification/mitigation) | Linguistic Realizations (Evidence) |
|---|---|---|
| | | |

Themes:
How does the page characterize IQ and science:
How the environment is represented:
Common notions:

Social media:
Tags (e.g., words for categorizing blog posts):
Notes on discursive strategies:
Overall Tone and Framing (natural vs. social (Goffman); episodic vs. thematic (Iyengar)):

Places:

Intertextuality:
Notes from linked pages:
Ads:
Interdiscursivity:
Interepistemological:
Quotes:

**Appendix III: CDA Form for Related Social Media**

Date Analyzed:
Social Media Platform:
Handle:
URL:
Languages:

Overall Tone and Framing:
Overall Themes and Purpose:

How does the page characterize IQ and science:
How does the page characterize the environment:

Number of Followers:
Number They Are Following:
Links and Connections:

Interesting Notes:

Key Takeaways:

**Appendix IV: CDA Summary Form**

Website:

Themes Examined:

Notes on overall architecture (taken from main page of site):

Preliminary thoughts  on website (stream-of-consciousness notes):

Preliminary thoughts on social media:

Summary of thoughts:

Common notions:

**Appendix V: Basic Interview Script**

1. [If participant provides permission to use their name in the report of research findings] What is your name?

2. How old are you?

3. How often do you use the Internet every week?

4. What Websites do you visit when you are using the Internet? What activities do you perform when visiting each of these sites? Are there sites or activities that you avoid online?

5. Do you ever read about or take part in discussions about the environment when you are visiting these Websites? Topics related to the environment might include hunting, camping, going out on the land, Inuit or government regulation of these activities, or climate change, among others.

6. What types of views are present in these discussions of the environment? Do you notice both Inuit and Qallunaat views?

7. What types of other users do you interact with online? Do you provide different types of information when you are interacting with either Inuit or qallunaat?

8. What language do you most often read when using the Internet? What language do you most often use when using social media or adding a comment to a web page?

9. What types of views and what types of knowledge are most often represented in the environmental discussions you see online?

10. Are there any incompatibilities between the types of discussions which occur online and traditional Inuit values? Do you feel that there are some aspects of Inuit life or knowledge that should not be expressed online?

11. How important to you is it for a site to use Inuktitut? Are there enough Inuktitut resources online?

12. Are there any aspects of online interactions which discourage your participation in online conversations, or which you know have discouraged the participation of other Inuit you know? What are these aspects?

13. Are you aware that Isuma Productions designed a website, titled IsumaTV? Are you aware that this website was designed to value Inuit political values of cooperation and the sharing of Inuit traditional knowledge?

14. Do you visit IsumaTV? If so, how does your experience on that site compare with your experiences on sites that weren't designed by Inuit? If not, why not?