A Case Study of Integrating *Inuuqatigiit*

into a Nunavut Junior High School Classroom

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Abstract

The study examines a Nunavut teacher’s view of the advantages and challenges to integrating *Inuuqatigiit: The Curriculum from the Inuit Perspective* into a junior high school science classroom. Student views were gathered to triangulate the teacher’s view. This case study of integration drew on evidence from semi-structured interviews, talking circles and classroom observations, over a four month period.

The research showed that while there are many challenges to incorporating *Inuuqatigiit* into a junior high school science classroom, there are many benefits. The teacher participant, Kublu (pseudonym), identified the following advantages: (1) the inclusion of familiar (local) contexts for students to learn science in, (2) the contextual base for the teacher to understand the students, (3) an increase in student self-esteem, (4) the identification of students as valued holders of knowledge, (5) increased value and pride in Inuinnaqtun, and (6) the teacher’s personal growth in learning about another culture. Challenges to incorporating *Inuuqatigiit* included: (1) interrupted time allotments for classes and courses, (2) additional planning time, (3) provincial exams, and (4) insufficient administrative support. General challenges to teaching Inuit children affected the success of integration as well: (1) students’ loss of language and cultural identity, (2) poor student attendance, (3) wide ranging academic levels within the classroom, and (4) the lack of basic physiological needs for some students. For Kublu the advantages outweighed the challenges, sufficiently for her to invest time and energy at integrating *Inuuqatigiit* into her future science courses.
The following potential avenues for future research were identified: (1) the development of a consensus on what Inuuqatigiit integration looks like in a “science classroom,” (2) the direction of Inuuqatigiit integration, (3) the success rates of students who are taught using Inuuqatigiit within their education system, (4) the students’ perceptions of Inuuqatigiit, (5) the effects of the community language usage and Inuuqatigiit integration, and (6) the role that age of the student plays in Inuuqatigiit integration.
Acknowledgements

The completion of this thesis represents steps on a path that has taken me three years to follow. Although I do not feel I have reached my final destination I feel that I am closer than when I began. I would like to take this opportunity to thank those who have walked with me.

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Chapter 1

Prologue

It has been said, there are events that occur in life that change the way we look upon the world forever. A series of these events happened to me starting in the fall of 1994.

I had just graduated with a Bachelor of Education degree from Dalhousie University in Nova Scotia and I was on my way to my first teaching position in the Central Arctic. I was told the transition from pupil to teacher would be a difficult one but I had no idea just how challenging it would be.

I crossed many political borders on my way to my new teaching position in the Central Arctic but none would be as challenging as the cultural borders I would cross living and teaching in an Inuit community. I moved several times in my life but I had never lived in a situation where I was a minority. I did not know the local language, Inuinnaqtun, nor did I understand the subtleties of the broken English that was spoken by the majority of community members. Communication with Aboriginal residents of the community was difficult for me. I was unfamiliar with the local norms and I was living on pins and needles trying not to offend people in the community.

Over the next two weeks I made friends with many of my fellow staff members and people in the community. I started to learn the broken English; however, I still did not understand much Inuinnaqtun. My world started to make sense again. I was becoming encultured into the local Inuit culture. Teaching was hard but it was on “my
Students were expected to submit to the subculture of the Canadian school system. Nowhere was this more prevalent than in the science classroom where I felt there was a clear mandate to teach the students the methods of science in typical Western school traditions.

The niche I had created in the classroom was thrown for a spin when one of my students hung himself early one September morning. I can still vividly recall my sense of shock and loss as the principal greeted me at the door with the news. I was stunned! Why had such a tragedy occurred? There must be a logical explanation as to why this student had chosen to “check out.” I searched for the answer but there was no logical one to be found. The scientific method I had espoused for the past two weeks in the classroom could not provide me with a solution.

Since that morning there have been several more suicides in the community. Each suicide brings forth the same question, why had this happened?

Reflection on these events has led me to conclude that the students have undergone the same problems crossing culture borders as I did during my early days in the north. The students were expected to cross from their Inuit culture into the school culture daily, just as I had to cross from the culture of mainstream Canada into that of northern Canada. There is one vital difference, however; I was able to make the culture border crossings with greater ease and keep my cultural identity intact. Many of the students have lost parts of their culture in the process of going to school. I believe this loss of culture may have affected their identity and feelings of self worth. I began to see the role of culture in the lives of the students both at home and at school.
Western Versus Aboriginal Perspective

The year 1492 marked the first meeting of two disparate world-views, each of its own uncharted course of exploration and discovery for purposeful knowledge. The encounter featured two diametric trajectories into the realm of knowledge. One was bound for the uncharted destination in outer space, the physical, and the other was on a delicate path into inner space, the metaphysical.

The Aboriginal world has since felt the repercussions of that encounter of world-views. The relentless subjugation of Aboriginal people and the discounting of their ideas have hurt those aboard the Aboriginal voyage of discovery into inner space. (Ermine, 1995, p. 101)

Ermine suggests two distinctive ways of viewing the world. In the first, he indicates a model which has been embraced by cultures whose origins can be traced back to Western Europe. This model attempts to measure and to quantify “outer space” objectively. Ermine writes, "In the process, Western science, the flagship of the Western world, sought answers to the greatest questions concerning our existence and our place in the universe by keeping everything separate from ourselves" (p. 103).

Knowledge acquisition centered towards “outer space” does not provide an opportunity for learning the Aboriginal metaphysical “inner space.” For learning to occur from an Aboriginal perspective, its bounds must be expanded past the physical realm and must liberate the atomistic view of knowledge that is present in Western culture (Ermine, 1995).
Those who seek to understand reality of existence and harmony with the environment by turning inward have a different incorporeal knowledge paradigm that might be termed Aboriginal epistemology. Aboriginal people have the responsibility and the birthright to take and develop an epistemology congruent with holism and the beneficial transformation of total human knowledge. The way to this affirmation is through our own Aboriginal sources. (p. 103)

The next logical step is to provide bridges between Western and Aboriginal ways of looking at the world. This will enable "children to grow up to be reasonable adults with a sense of what it is like to be Inuk in a northern settlement. They feel that an education should teach them about the best of both worlds that the north has to offer" (Inuuqatigiit Committee, 1996, p. 3).

**Significance and Purpose of the Study**

Attempts have been made to bridge the cultural differences that exist between a student’s home, community and school in the Northwest Territories. In 1994, an effort to bridge the gap between the culture of the Western school system and the culture of Inuit communities was realized with the development and implementation of Inuuqatigiit into the kindergarten to grade twelve curricula. Inuuqatigiit “created an educational link between the past and the present; a link that has been lost in some places in the north. It has helped reinforce the Inuit identity of children and future generations. It will also create a new path in the schooling system where communities will play a more visible role in their children’s education” (Inuuqatigiit Committee, 1996, p. 3). The intent of this
new curriculum was to bring Inuit culture into the classroom and provide relevance for students. The new Nunavut Department of Education quickly adopted the goals of Inuuqatigiit shortly after the division of the Northwest Territories and the creation of Nunavut.

Inuuqatigiit represented a radical shift from a Western culture based curriculum to a curriculum which found its roots grounded in Inuit epistemology. The curriculum embodied not only curriculum content representative of Inuit people but also the attitudes, beliefs and values of Inuit (Inuuqatigiit Committee, 1996). In this regard the philosophy of Inuuqatigiit evolved to parallel the philosophies embedded in the Saskatchewan Education (1984) document, Directions (Saskatchewan Education, 1994). This is exemplified through Recommendation 10 in Directions: The Final Report which recommends that "the Minister initiate the formulation of policies and procedures to ensure that the unique needs of Northern and Indian/Native students are met" (p. 8).

Inuuqatigiit exemplifies the formulation of policies and procedures in relation to curriculum content and development for Inuit.

These attempts address the concerns proposed by Ermine (1995) regarding the need for Aboriginals to provide the source of knowledge. But these attempts do not address other issues that arise in the classroom.

One such issue is that of the intended curriculum (what the curriculum writers would like teachers to teach) versus the taught curriculum (what teachers actually teach). The intended curriculum prescribed by the Department of Education is not always the same as the taught curriculum (Cuban, 1992). In this regard, Inuuqatigiit shares many
similarities with other intended curricula, a divergence in the goals of the curriculum and the practices of teachers are present.

The study I proposed for my thesis examined some of the differences between intended and taught curricula in relation to Inuuqatigiit in one classroom in Nunavut.

My study was exploratory. Examination of the literature suggested that there was no documentation on the effects of including Inuit culture in the science classroom at the junior high school level. Two purposes of the study were to ascertain the possible methods of incorporating Inuuqatigiit into the science curriculum outlined by the Department of Education and to determine the effects of incorporating Inuit culture in a junior high science classroom. The investigation explored cultural integration into science teaching from the perspective of the teacher. From the study, I was able to better understand the integration of Inuuqatigiit in one teacher's science classroom. Thus, I focused on the teacher's perspective regarding the advantages and disadvantages of incorporating Inuit culture into her junior high science classroom, that is, the integration of Inuuqatigiit. Student volunteers acted as informants to provide richer data for the study. The inclusion of these two points of view allowed the two stakeholder groups to have a voice in my understanding of Inuuqatigiit integration.

This study is not meant to be generalized to other junior high classrooms in Nunavut. The reader must decide whether there are similarities between the classroom in the study and other classrooms in Nunavut or other areas where culture intersect.
Research Question

The study investigated a Nunavut junior high science classroom in which the teacher was attempting to integrate Inuuqatigiit into the conventional science curriculum as determined by the Nunavut Department of Education.

The study examined the following question: What are the advantages and challenges for both the teacher and students of incorporating Inuuqatigiit into a Nunavut junior high science classroom? More specifically, the study attempted to answer the research question by investigating and exploring the following:

1. The setting in which the class occurred.
2. The methods of integrating the conventional science curriculum and Inuuqatigiit.
3. Identification of the advantages and challenges students faced in a science class which was attempting to implement key experiences identified in the Inuuqatigiit curriculum.
4. Identification of the advantages and challenges for the teacher who attempted to adapt the conventional science curriculum to reflect Inuuqatigiit philosophy.

I believe that some answers to the research question have been suggested by many Nunavut educators but have not been documented to date. This study provides Nunavut educators with a documented version of the story of one Nunavut classroom.
Synopsis of the Procedures for the Study

This study followed the procedures of a naturalistic inquiry. Research was completed following a case study approach of one junior high school science classroom in Nunavut. Participants in the investigation were limited to the teacher and a small number of students who volunteered for the study. In an attempt to maintain the anonymity of the research participants the grade level of the classroom and the location of the school was kept confidential.

The teacher chosen displayed a desire to incorporate Inuuqatigiit philosophies into her classroom. An application to the Nunavut Research Institute was completed to gain permission to do the study in accordance with the regulations of the Nunavut District Education Councils. The Director and the Principal of the school where the research occurred were consulted on the nature of the research. At the request of the Director the teacher indicated her desire to participate in the study via a letter of consent. Final approval to conduct the research was granted by the Nunavut Research Institute after the District Education Council and Hamlet submitted letters of consent. All parties were given a copy of the final letter confirming approval from the Nunavut Research Institute.

Data were gathered from the teacher prior to the commencement of the school year. Student data collection began on September 9th and continued until January 11th when the final semi-structured interview occurred. It was anticipated that data collection could start during the first week of school; however, the initial time projections to collect permission forms were over ambitious. Prior to the beginning of the study, the teacher was asked to identify her goals for the class (related to the research question) during the period of the study. This information formed a foundation upon which I was able to
identify key items to observe over the course of the investigation. These initial items were reviewed by the teacher and myself at the end of the study to determine the extent to which they were attended. Teacher perceptions of the causes of success or failure to meet goals were identified through an interview process.

Students were selected to participate in the study as a means of triangulating the data gathered from the teacher. Students were selected via a lottery from class members who wished to participate and provided the necessary permission forms.

**Definitions of Terms**

The specific terms used in this research are defined as follows:

1. *Inuuqatigiit: curriculum from the Inuit perspective.* “Inuuqatigiit, means Inuit to Inuit, people to people, living together, or family to family” (Inuuqatigiit Committee, 1996, p. 3). *Inuuqatigiit* represents a shift in educational policy from a Western epistemology to an Inuit epistemology. Parallels can be made between Inuuqatigiit in the Northwest Territories and its Saskatchewan equivalent *Directions* (Saskatchewan Education, 1984) in regards to the all-encompassing focus toward curriculum development.

2. Aboriginal (Inuit) science curriculum: science curriculum taught from an Aboriginal perspective which includes components of spirituality, diversity, culture, tradition, respect, history, relentlessness, vitality, conflict, place and transformation which are not typically part of the conventional curriculum (MacIvor, 1995). Science taught in this context can be viewed as holistic with an embedded respect for nature (Ermine, 1995).
3. Western (conventional) science curriculum: a science curriculum which conveys the characteristics of the subculture of science such as: “mechanistic, materialistic, reductionist, empirical, rational, decontextualized, mathematically idealized, communal, ideological, masculine, elitist, competitive, exploitive, impersonal, and violent” (Aikenhead, 1997, p. 220).

4. Integration: In the context of this study integration is defined as the degree to which the Aboriginal science curriculum is blended with the Western science curriculum. The teacher in the study will ultimately construct this definition.

5. Subculture of science: “norms, values, beliefs, expectations and conventional actions that are generally shared in various ways by communities of scientists” (Aikenhead, 1996a, p. 10). Aikenhead and Jegede (1999) define the subculture of science as possessing the qualities of a micro-culture.

6. Border crossings: “Border crossings between micro-cultures can occur whenever someone moves from one social community to another” (Aikenhead & Jegede, 1999, p. 271). This study will deal with the border crossings that occur as students cross from Inuit culture into the micro-culture of science.

7. Collateral learning: “Collateral learning represents a process whereby a learner in a non-Western classroom constructs, side by side and with minimal interference and interaction, Western and traditional meanings of a simple concept” (Jegede, 1995, p. 11).
Chapter 2: Review of the Literature

Background to the Study

The history of Aboriginal education inside the borders of present day Canada started long before the first Europeans settled at Port Royal. Hampton (1995) defined the summer of Indian education as the period before the European invasion. Native education at this time was not the same as what we may consider education today. Embedded in the Native curriculum were the skills necessary to survive in the harsh climate (Inuuqatigiit Committee, 1996). As the “first settlers” continued to come to the “New World,” the skills of the Native population were highly praised. Europeans attempted to understand and adopt these everyday practices to facilitate their survival. This was especially true of the Inuit who lived in the harshest of all Canadian climates, the Arctic. Inuit oral tradition recounted many tales of Inuit helping Europeans survive the extreme winters of northern Canada.

Over time the value placed on these skills changed as people came to better “control their environment.” These skills are not as valuable today, especially to non-Native people, as they were when Canada was “first” being settled. Somewhere along the way the value of traditional knowledge was replaced by the European atomistic view (Ermine, 1995). The undermining of traditional knowledge resulted in its exclusion from the school curriculum. Does this mean the knowledge of the Native peoples of Canada is not valuable? Does it mean that these values should not be included in the current curriculum as it is now?
It has been suggested that exclusion of Aboriginal ways of knowing from the curriculum is a form of cultural genocide. Hampton (1995) wrote, “Western education is in content and structure hostile to Native people. It must be straightforwardly realized that education, as currently practiced, is cultural genocide. It seeks to brainwash the Native child, substituting non-Native for Native knowledge, values and identity” (p. 35). Leavitt (1995) indicated that attempts to incorporate Native culture into the curriculum has been “limited to inclusion of information in both languages about Native material culture – artifacts, traditional skills, and related knowledge and beliefs – which is seen essential to understanding the Native way of life” (p. 133). Although many would view this as an authentic method of introducing Native culture into the classroom, Leavitt believed “this approach, however, segments Native life in a non-Native way by viewing it in English terms as a composite of specializations. This may happen even though the medium of instruction is a Native language” (p. 134).

Ermine suggested, “Aboriginal people should be wary of Western conventions that deny the practice of inwardness and fortitude to achieve transformative holism” (p. 103). In the Northwest Territories, prior to division of the territories, attempts were made to espouse these values through the development and implementation of Aboriginal based curricula. This study focuses on one of these curricula, Inuuqatigiit.

**Inuuqatigiit**

*Inuuqatigiit* was developed by the Inuit Subject Advisory Committee (ISAC) under the authority of the Northwest Territories Department of Education, Culture and
Employment in response to a request for more culturally relevant curricula for Inuit students.

*Inuuqatigiit* focuses on the enhancement and enrichment of the language and culture of Inuit students. It also promotes integration of the Inuit perspective with the standard school curriculum. In almost every school subject students should learn about Inuit history, knowledge, traditions, values and beliefs. (Inuuqatigiit Committee, p. 3)

Central to this document was the idea of Inuit culture. The document was created using the stories of Inuit Elders. “It was the Elders that gave the information they felt was important to remember. As they gave information, many reflections and stories were interwoven with facts. It is their knowledge that gives this curriculum its true Inuit essence” (Inuuqatigiit Committee, 1996, p. 4). *Inuuqatigiit* did not provide a clear definition of culture in the Inuit context for teachers to utilize in their classrooms. It did, however, supply a list of attributes that constituted Inuit culture according to Inuit Elders. Language was the first and foremost of these characteristics. Also significant were Inuit traditions, beliefs, legends, skills for survival, relationships with people and relationships with the environment. These traits used to define Inuit culture were similar to those proposed by Aikenhead (1996a, 1997), MacIvor (1995) and Stairs (1995) when defining culture.

**The Role of Culture and Subcultures**

Aikenhead (1997) identified not only cultures associated with individual ethnic groups but also subcultures that existed within and between these individual cultures.
One such subculture within Western cultures was science. He defined the subculture of science as “a well defined system of norms, values, beliefs, expectations, and conventional actions” (p. 219) that were shared by scientists. When one taught using the beliefs inherent in the subculture of science and those were not congruent with the beliefs of the students in the class, the students had to perform a border crossing from their culture into the subculture of science. Aikenhead stated that whenever an individual crossed from one culture or subculture to another culture or subculture the person was making a cultural border crossing (Aikenhead, 1996a, 1997). Students must cross these cultural borders every day in the Arctic where Inuit methods of instruction are not the same as those in mainstream Canada (Stairs, 1995). These border crossings can create conflicts for students. Aikenhead (1996a) reiterates Stairs metaphor of the teacher as a culture broker to resolve any conflicts that result from students crossing from their personal culture into the subculture of science (p. 30). Teachers in Nunavut would have to fill this role as cultural broker to ensure a smooth transition between Inuit culture at home and the culture of Western science in their classrooms.

The emergence of a new territory on Canada’s political map has ushered in a renewed awareness for the incorporation of culture into the classroom. Nunavut is composed of eighty-five percent Inuit with fifty-six percent of the total population under the age of twenty-five (Lankin & Vincent, 1999). The political change brought greater cries for the integration of Inuuqatigiit philosophies into the “traditional Western classroom.” It can be anticipated that the greatest resistance to the incorporation of Inuuqatigiit will come from the science classrooms of Nunavut where the subculture of science is engrained in science teachers. This is especially true in the higher grades that
are typically dominated by White teachers from the southern parts of Canada. These individuals have been exposed to the subculture of science since their first exposure to a science class. Courses and labs completed in university have further entrenched the science concepts into their personal philosophy. The subculture of science and its inherent characteristics are likely to be emulated by the teachers, knowingly or unintentionally, as they ‘cover the curriculum.’ Goodlad (1988) believed there was a need to replace the belief that “schools are goal oriented factories engaged in processing human materials” (p. 338). The natural outcome of this in his opinion was a cultural model, which significantly influences how we view schools and improve upon existing models. How can this cultural model of schooling improve Native education?

Macdonald (1988) viewed the role of education in light of the cultural model of schooling proposed by Goodlad. Macdonald believed that “curriculum thinking should be grounded in cultural realities” (p. 175). The cultural reality for Nunavut lies in a population composed of eighty-five percent Inuit (Lankin & Vincent, 1999) in schools which teach a curriculum based on the same curriculum taught in Alberta. If “the aim of education should be a centering of the person in the world” (Macdonald, 1988, p. 186), how would this be possible using a model developed in Alberta outside the context of Inuit culture? What is the role of culture in the education system of Nunavut? Will the standards of southern Canada be maintained in Nunavut? How does the role of culture affect science education in Nunavut?

Science was traditionally thought to be devoid of culture (Aikenhead, 1996a). It can therefore be expected that science teachers will reject the use of Inuuqatigiit as it made culture the central focus of the classroom. Are there benefits to integrating Inuit
culture into the science classroom? Will it help facilitate the border crossings students must make? All of the questions posed have not been answered for the people of Nunavut. But they are questions which must be answered by educators if the people of Nunavut are to determine what counts as a valid education in their territory.

**What Counts as Science Education**

In the article “What Counts as Science Education,” Roberts (1988) states, “It would be impossible to find even two teachers who would either agree upon, or would be willing to be bound by a single list of topics as a definition of what counts as science education” (p. 29). This argument stressed the need to determine the goals of science on a local level. Roberts noted the answer to the question of what counts as science education “will be different for every educational jurisdiction, for every duly constituted deliberative group, and very likely for every science teacher” (p. 30). This is especially true in Nunavut where the demographics are unique to Canada. In fact, there is no other area in North America where the population is composed of over 80% Aboriginal people all inside of the same political boundary. This unique situation has resulted in Aboriginal peoples having a level of autonomy to create and legislate their own curriculum. This has not happened before in Canadian history.

*Inuuqatigiit* was an attempt to determine what counts as education for the Inuit. The document focused on promoting the goals Inuit Elders believed to be “important for children now and for the future” (*Inuuqatigiit* Committee, 1996, p.5). These goals were developed within Nunavut and the Beaufort Delta with the input of Elders from across the regions.
Roberts (1988) had suggested a model of curriculum development similar to the one used in creating *Inuuqatigiit*. Roberts indicated the need for the science curriculum to satisfy three basic components:

1. Answer locally the question, “What counts as science education?”
2. Undergo the sociopolitical process.
3. Address teacher interpretations and loyalties to the curriculum.

*Inuuqatigiit* attempted to address these three issues. In the first case, the actual content of the curriculum was in accordance with objectives of the people it serves through consultation with Inuit Elders throughout the Arctic. In the second matter, the curriculum was mandated by the Minister of Education and met the sociopolitical criteria proposed by Roberts. The critical issue, therefore, became the method in which the teacher interpreted the curriculum and how he or she chose to deliver it to the students. In the true sense of *Inuuqatigiit* philosophy, the teacher would embrace the beliefs of the Elders and teach Inuit cultural concepts as the Elders have for centuries. I suspect this did not always happen but the curriculum stressed the need to adopt these teaching methods. The true essence of *Inuuqatigiit* cannot be captured as long as educators are immersed in the subculture of science. Teachers must step out of the shell of traditional Western science teaching and work in a new paradigm.

**Inuit Education**

Stairs (1995) recognized two different approaches to education practiced by the Inuit of the North Baffin.
Isumaqsayuq is the way of passing along knowledge through the observation and imitation embedded in daily family and community activities, integration into the immediate shared social structure being the principal goal. The focus is on values and identity, developed through the learner’s relationship to other persons and the environment. In contrast, ilsayuq is teaching which involves a high level of abstract verbal meditation in a setting removed from daily life, the skills for a future specialized occupation being the principal goal. (p. 140)

In the context of science education, it was apparent that Western schools fell in the category of ilsayuq while the Aboriginal science education completed outside of the school would be isumaqsayuq. Repairing a skidoo engine embodied the philosophies of isumaqsayuq and was seen by many students as far more applicable to their life situations (Stairs, 1995). Students were likely to find little relevance in school science if there were no practical bridges to outside the classroom.

Inuit learned by different means than those advocated by behaviorist or constructivist theorists. “Native learners tend to typically develop concepts and skills by repeating tasks in many different situations ... They do not traditionally make explicit verbal formulations of basic ideas or rules for success” (Stairs, 1995, p. 141). Stairs continues,

Teachers unfamiliar with the type of contextualized education exemplified by isumaqsayuq often worry that students do not ‘know’ a particular topic or concept when they can not verbalize the knowledge; they assume that
verbal abstraction is a necessary mediating step in higher-level understanding. (p. 141)

Understanding Inuit culture played a key role for the teacher if he/she was to facilitate learning and then assess the level of understanding the students had gained. Non-Aboriginal teachers could not make these judgments without taking culture into account. In light of this it was also important for the teacher to consider culture when planning a lesson for the students. In many cases the teacher may have been attempting to relate material to students in a manner that was not within their experience to interpret.

Culture plays the leading role throughout Inuuqatigiit. The first goal stated in the document is to “maintain, strengthen, recall, and enhance Inuit language and culture in the community and the school” (Inuuqatigiit Committee, 1996, p. 5). A question arises with respect to science education: Why should culture be a part of the science classroom?

**Cultural Border Crossing**

Aikenhead (1997) pointed out that science was in fact a subculture unto itself. This subculture had within it inherent values, beliefs and norms which may not have been familiar to the student. When a student entered a science classroom he/she was entering into this new subculture. This constituted a cultural border crossing (Aikenhead, 1996a, 1997).

Costa (1995) identified five categories of students who cross borders from the subculture of science into their own personal cultures. Using these categories Aikenhead (1996a) was able to provide educators with the opportunity to “consider the consequences
(for the curriculum) of a cultural perspective for science education” (p. 16). The result for each of the five classes of students according to Aikenhead included:

**Potential Scientists:** School science is viewed as enculturation and a type of rite of passage. Border crossing into the subculture of science is smooth.

**Other Smart Kids:** School science is viewed as necessary for continuation in post-secondary education and choose not to take science after high school. Border crossing into the subculture of science is managed.

**I Don’t Know Students:** School science becomes a game and students pass their science courses without understanding the content. Border crossing into the subculture of science is hazardous.

**Outsiders:** School science is unimportant to these students. For most, border crossing into the subculture of science is impossible.

**Inside Outsiders:** School science is interesting to these bright students but find they are inhibited due to school discrimination and a lack of support from peers and family (pp. 17-19).

Historically, Native peoples of North America have been assimilated into the subculture of science (Aikenhead 1996a; MacIvor, 1995). Those who were not assimilated typically did not do well in their science classes. There are those students who have been able to pass science and not be assimilated into the science subculture. These students choose to play Fatima’s rules (Larson, 1995) and utilize various strategies to pass the course. The utilization of these strategies was not an indication of clear understanding of the science concepts by the students. It did indicate an ability to adapt
learning strategies that would enable them to pass the course and not sacrifice their individual culture. Following Fatima's rules thus allowed them to avoid assimilation into the subculture of science.

Tufts (1998) acknowledged the proposal made by Aikenhead (1996b) for a new science curriculum which would:

1. make border crossings explicit for students,
2. facilitate these border crossings,
3. validate the students' personally and culturally constructed ways of knowing about nature, and
4. teach the knowledge, skills and values of Western science in the context of the societal roles (for example, societal, political, military, economic and ethical roles). (p. 68)

This new science curriculum “would make the science knowledge, skills and values potentially accessible to students without the concomitant assimilation that has traditionally dominated science curricula” (Aikenhead, 1996a, p. 26). In effect, Aikenhead was proposing a curriculum that contained the goals advocated by *Inuuqatigiit*. *Inuuqatigiit* proposes anthropological instruction that teaches the student to treat Western science as a repository to be raided in order to make sense of Western science concepts (Aikenhead, 1996a). In this manner, culture forms the cornerstone for the curriculum that provides a framework for students to make sense of their world and should be a part of the science classroom.
Collateral Learning

The concept of collateral learning is also integrally linked to culture. Developed by Jegede (1995) in an attempt to better understand the process non-Western students undergo while in a Western classroom, collateral learning offers the proposition that learners in a non-Western classroom:

- construct, side by side and with minimal interference and interaction, Western and traditional meanings of a simple concept.
- Collateral knowledge, therefore, is the declarative knowledge of a concept which such a learner stores up in the long-term memory for strategic use in either a Western or a traditional environment.

(p. 117)

Jegede sub-divided collateral learning into four different types: parallel, simultaneous, dependent and secured. Aikenhead and Jegede (1999) clarified these categories of collateral learning further in a collaborative effort in the following manner:

- **Parallel**: Information students receive from their school science exists beside their traditional science concepts. The schema accessed by the student is dependent on the context.

- **Simultaneous**: Information students receive in school science about a concept can facilitate the learning of a similar or related concept in their traditional environment.

- **Dependant**: Information students receive in a Western or traditional science context conflicts with the student’s present worldview in such a way as to
cause a modification of the student’s existing schema without radically restructuring it.

- **Secured**: Students consciously retain both Western and Aboriginal science concepts even though they may conflict. There may be a convergence toward a common schema as one concept reinforces the other.

   It could be argued that *Inuuqatigiit* attempts to provide educators with the best means to instruct students “about the best of both worlds that the north has to offer” (Inuuqatigiit Committee, 1996, p. 3). Through successful strategies implemented by teachers, *Inuuqatigiit* would enable students to cross borders between Western science to traditional knowledge. Collateral learning could occur in a context that would not alienate students from science. This would help them “acquire scientific knowledge, interests, skills, attitudes and ways of thinking without doing violence to their particular cultural beliefs and experiences” (Hodson, 1992, p. 16).

   *Inuuqatigiit* was an attempt to provide a culturally relevant curriculum for Inuit students. It is logistically impossible to ensure that all teachers are implementing *Inuuqatigiit* in the intended fashion. The best that can be hoped for is that teachers are able to identify with the potential benefits of adapting the *Inuuqatigiit* philosophy into their classrooms and attempt to embrace its goals. In effect, this research study examined the advantages and challenges for both the teacher and students of integrating *Inuuqatigiit* into a Nunavut junior high classroom.
Chapter 3: Methodology

Choice of Paradigm

"Qualitative researchers seek to make sense of personal stories and the ways in which they intersect" (Glesne & Peshkin, 1992, p. 1). When I first read this short sentence I was captured by it. I found this to be not only a statement that I could relate to but also one which described my personal philosophy. In my mind there was no other way to deal with individuals than on a personal basis. People have unique personalities that are displayed by the way they interact with the world around them.

Continued investigation into the methods used for qualitative and quantitative research did provide me with some insights into the validity of a positivist approach to educational research, in some contexts. I knew this approach had some value, but it was not my preferred approach to research and I soon realized it would not serve me in this study. I became even more steadfast in my resolve to treat the people involved in my study as individuals and not as numbers. This had an enormous influence on my choice of pursuing a naturalistic research study.

Choice of Case Study

This study was firmly grounded in naturalistic research following a case study approach to the research. In the words of Stake (1994), “Case study is not a methodological choice, but a choice of an object being studied. We choose the case. We could study it in many ways” (p. 236). In this study, the case to be studied was a junior
high science classroom within the boundaries of Nunavut. The choice of this case therefore defined the study as a case study but it did not dictate a particular format by which the study was to proceed. Gall, Borg and Gall (1996) noted, “A case study is done to shed light on a phenomenon, which is the process, events, persons or things of interest to the researcher” (p. 545).

The research completed could be further classified as a combination of two approaches to a case study (Stake, 1994). An intrinsic approach (a particular case is studied to gain a better understanding of the particular case) and an instrumental approach (a particular case is examined to provide insight into an issue or refinement of theory) to case study methodology. Stake noted that there is no line that separates these two approaches, rather a zone of combined purpose separates them. Although my main concern was one junior high science classroom (an intrinsic focus), it helped me gain insight into the greater issue of the advantages and challenges of incorporating *Inuuqatigiit* into a science classroom (an instrumental focus). As I developed a better understanding of the classroom under investigation I was able to advance my understanding of these aspects of *Inuuqatigiit* integration. Individual teachers may find that the results of this research are or are not transferable to their classrooms depending on the degree of similarity between the case studied and their own situation.

**Bounds of the Study**

Creswell (1998) noted that a researcher should, "choose a case study to examine a 'case,' bounded in time or place" (p. 40). Both time and place bind the case chosen for this study with each described in turn:
Time

The study occurred between August 23, 1999 and January 16, 2000. The initial interview with the participating teacher in late August before the start of classes signaled the commencement of the study. The final interview with the teacher indicated the completion of the data gathering stage for the investigation. Three interviews occurred within this time frame with the student group.

Observations were made during every science class for the first two weeks of class. The original intent of study was to perform classroom observations for a two-month period. These plans were modified in early September after the teacher was absent from the class for almost three weeks for personal and family reasons. It was decided that classroom observations would not occur during this period as the study focused on the teacher's perspective. Classroom observations continued for three more weeks after the teacher returned to work. These events were quite stressful on the teacher. Therefore to relieve some of the stress it was mutually agreed upon that I should not attend any more classes. The teacher expressed her wish to continue the study once she had some time to deal with these personal matters. The last classroom observation concluded on October 14th. The decision to conclude the observations at this time was mutually agreed upon when the teacher noted that the observations, coupled with personal issues, were creating too much stress for her.

A second teacher interview, as well as a semi-structured interview with the students, occurred prior to the Christmas break. The final interviews with the students and teacher occurred on January 11 and January 16 respectively. Although the final schedule did not correspond with my original timeline, I felt it important to be sensitive to
the needs of the participants and not put undo stress on them. Consequently, I was able to
protect the integrity of the data although it was not as thorough as I would have liked.

Table 1 outlines the progression of events.

Table 1. Overview of Research Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Teacher Interview</td>
<td>August 23, 1999</td>
</tr>
<tr>
<td>First Classroom Observation</td>
<td>August 24, 1999</td>
</tr>
<tr>
<td>First Student Interview</td>
<td>September 9, 1999</td>
</tr>
<tr>
<td>Teacher Becomes Sick, Break in</td>
<td>September 10, 1999</td>
</tr>
<tr>
<td>Classroom Observations</td>
<td></td>
</tr>
<tr>
<td>Classroom Observations Resume, Teacher</td>
<td>September 29, 1999</td>
</tr>
<tr>
<td>Returns to work</td>
<td></td>
</tr>
<tr>
<td>Second Teacher Interview</td>
<td>October 3, 1999</td>
</tr>
<tr>
<td>Last Classroom Observation</td>
<td>October 14, 1999</td>
</tr>
<tr>
<td>Second Student Observation</td>
<td>December 12, 1999</td>
</tr>
<tr>
<td>Final Student Observation</td>
<td>January 11, 2000</td>
</tr>
<tr>
<td>Last Teacher Interview, Conclusion of Data</td>
<td>January 16, 2000</td>
</tr>
<tr>
<td>Gathering Stage of Study</td>
<td></td>
</tr>
</tbody>
</table>

**Place**

The study took place in a junior high classroom located in a school serving grades 7 to 12 students in a mid-sized Nunavut community. The demographics of the community consisted of approximately 90% Inuit residents with the other 10% relocated to the community from outside Nunavut. To maintain the anonymity of the participants, the community and grade level have remained confidential. The participants involved in the study have been limited to the teacher and five students who chose to participate.

**Selection of Participants**

One of the major factors that affected the results of the study was the teacher. The choice of teacher participant, Kublu (a pseudonym), was based on the fact that she was
one of the few science teachers who actively incorporated the principles of *Inuuqatigiit* in the delivery of science programs at the junior high level. My experience in the community where the research was conducted made me aware of this possible candidate. Kublu’s reputation and indirect observation of her teaching practices led me to actively recruit her. She agreed to participate and we met prior to the beginning of the school year for the first interview.

Four students were invited to participate in talking circles and semi-structured interviews because their voices could confirm or contradict the data received from the teacher. The purpose of the study was explained to the students and their legal guardians prior to the distribution of the necessary permission forms. Seven students in the class indicated a desire to participate in the study and returned the consent forms. Four of the seven students were selected by lottery in front of the class. The remaining students were selected as alternates in the event that any of the students withdrew from the study.

One of the original students chose to withdraw from the study prior to the first session and was replaced by the first alternate on the list. After the first interview one of the students moved to a different community and withdrew from the study. It was decided that the two remaining alternates would be included in the study. The decision to include both of the alternates was made to ensure that the final participant did not feel excluded and it was evident after the first interview that an additional data source would enhance the study and not prove unmanageable.

**Data collection**

Data collection procedures involved formal and informal interviews, talking circles, classroom observations and field notes. The interviews were audio taped and
transcribed. During the transcription process I changed the real names to pseudonyms leaving out extraneous information such as pauses (words like “umm”) and gossip. During the classroom observations I made notes which formed the basis for subsequent interviews with the participants.

Data were collected until a point of saturation was reached when no new relevant data were forthcoming from the data collection procedures (Gall & Gall, 1996). There were two main factors that contributed to this conclusion: (1) mutual agreement to conclude the classroom observations terminated data collection within the class and (2) the information forthcoming from the interviews had become repetitive and did not yield new information.

**Semi-Structured Interviews**

A semi-structured interview, about one and a half-hours in duration, was conducted on August 23rd prior to the commencement of the school year. The purpose of this first interview was to discuss the teacher’s background, gain insights into her philosophies of northern education, and ease any fears she had of the research process. Kublu’s long-term goals, short-term goals and objectives for the upcoming school year were articulated in this first interview. Uncovering these goals was useful to determine if Kublu had exceeded, met, or fell short of her expectations for the class during the period of the study. The teacher interview identified factors that she felt would be helpful in meeting these goals as well as possible obstacles. This information was useful to help develop a context of the teaching environment prior to the first classroom observation.
The teacher was formally interviewed two more times throughout the study to determine her impressions of strategies utilized in the class. These interviews lasted between 60 and 90 minutes. Interviews were audiotaped and later transcribed. Member checks were made with the teacher after each interview to ensure the accuracy of the data (Gall et al., 1996, p. 575; Lincoln & Guba, 1985). The member checks happened only with the first interpretation of the data obtained from the interviews. This made it possible to reduce the time commitments of the teacher while ensuring the validity of the data.

**Talking Circles**

Based on the research completed by Tufts (1998), it was anticipated that the students might not feel comfortable presenting their views individually. The process of the talking circle used by Tufts was used instead of a semi-structured interview for the first student interview to allow for a culturally relevant exchange of dialogue with the students.

In the Tuft's protocol no one was considered the leader and all participants were considered equals. Everyone sat in a circle equidistant from the centre and adhered to the same set of rules. The rules for the talking circle were:

1. One person speaks at a time.
2. No one is forced to speak.
3. No time limit is placed on what the speaker has to say.
4. Everyone in the circle listens respectfully to the words of the speaker.
5. The person on the speaker's left is the next one to speak.
6. No one is permitted to criticize or speak negatively of what is shared in the circle.

(Tufts, 1998, p. 75)

The talking circle session commenced with myself as the researcher stating the intended theme: What the students like and dislike about science. A rock was used to pass around the circle several times with only minimal comments. I then suggested a second theme of experiments and projects based on the student comments. This had a similar result with students only commenting on the first pass of the stone.

The talking circle did not prove to be successful due to reluctance, or inability, on the students' part to elaborate on their responses beyond one-sentence or one-word answers. Although the talking circle was not successful, students indicated that they wanted to maintain the group and be interviewed collectively. Students were subsequently invited to participate in semi-structured interviews as a group for the second and third sessions. This met with greater success. Using this approach, students were interviewed to determine the advantages and challenges they faced in the science class attempting to integrate Inuuqatigiit. This continued for several more themes at which point I decided to adapt a semi-structured interview approach to probe student responses further.

It was hoped students would feel more comfortable about talking individually as the study progressed. This did not happen. Students were asked if they would like to converse with me individually and they reported they would prefer to be in a group. Rather than member checks with the students, member checks were performed with the Principal of the school after each interview was transcribed to ensure the best interests of the students were ensured.
Classroom Observations

Classroom observations occurred over 24 class periods. These observations occurred between August 24th and September 10th and in a second block from October 1st to October 14th. It was necessary to break up the observation times due to medical reasons experienced by the teacher and family issues. I did not complete the intended eight weeks, 32 classes, of observations due to these factors. Notes were taken during these observations and I attended both field trips that occurred in this span of time. I do feel that more information could have been gathered from further observation but it was agreed that this would create more stress than the teacher participant was willing to undergo for the study.

Data Analysis

Analysis of the data resulted in themes and patterns that provided a better understanding of the case (Creswell, 1998). This analysis followed an interpretation analysis approach (Gall, Borg & Gall, 1996). Themes emerged early in the data collection process. For example, it was evident that Kublu had anticipated difficulties in delivering a culturally relevant program prior to the commencement of the school year. As the transcripts were reviewed computer files were created for each emerging theme. Quotations that supported a theme were placed in the appropriate file along with the corresponding interview date and line number. Many themes were identified in the first interview with Kublu. Subsequent interviews provided supporting evidence for these themes as well as the emergence of additional themes.
Issues Related to Trustworthiness

Trustworthiness of the data collected from the interviews, talking circles and classroom observations was maintained through establishing multiple sources of evidence, an audit trail and performing member checks of first interpretation interview data and classroom observations (Yin, 1989). The multiple sources used to gather evidence consisted of classroom observations, semi-structured interviews with the teacher and students and one talking circle session with the students.

Lincoln and Guba (1985, pp. 319-320) outlined the elements of a well-formed audit trail. These included: raw data, data reduction and analysis products, data reconstruction and synthesis products, process notes, materials related to intentions and dispositions and instrument development information. These elements have been used in the study to “establish a chain of evidence” (Yin, 1989, p. 41).

Member checks were made with the teacher in regards to both the first interpretation of interview data and classroom observations to ensure accuracy in the interpretation of data. Member checking also occurred continuously throughout the study both formally and informally with the teacher. Member checks were also performed on my interpretations from the classroom observations to ensure they were an accurate reflection of the events as seen through the participants' eyes. It has been established in the literature that “the process of member checking is the most crucial technique for establishing credibility” (Lincoln & Guba, 1985, p. 314).

Member checks did not occur in regards to student data generated from the talking circle and the semi-structured interviews with the students in order to limit their time
commitments. The Principal was asked to review the first interpretation of the transcripts from each student session to ensure the anonymity of the student participants.

It was impossible to claim any measure of transferability of the findings which may come from the data since I was only familiar with the sending end of the final report (Lincoln & Guba, 1985, p.297). Any claims to transferability are therefore left to the reader.

**Researcher's Background**

Glesne and Peshkin (1992) stated, "There is a connection between rapport and subjectivity: Your capacity and limitations for establishing rapport are affected positively and negatively" (p. 106). I spent several years as a teacher and administrator in the school where the research was completed for this study. During this time I had become a colleague, friend and confidant to Kublu. I had likewise been a teacher, friend and basketball coach to several of the student participants. Although this situation could be portrayed as one that would bias any information provided by the participants it also enabled me to start my research with a sense of trust. "Friendship may assist you and others to achieve and act on new perspectives in a negotiated fashion" (p. 100). It has also been noted, "the contribution of rapport to all modes of qualitative research remains essential" (p. 100). Without my previous experience in the community I do not believe I would have been able to develop a level of rapport and trust prior to entering the study. The teacher and students were willing to do the research to 'help me out' because they knew I would protect their best interests. It is my belief that my closeness to the situation
allowed me to gain a level of rapport that could not have been achieved otherwise. This subjectivity became "just something to live with" (p. 101).

I strongly believe that teachers should teach students within a cultural context that makes sense to the students. I believe this will provide students with the best possible opportunity to succeed. Experience has taught me that students do not achieve success when they are taught “facts” that reside outside of their worldly experience, worldview and cultural context. My time in the North has honed this belief into a desire to see Inuuqatigiit practiced in all Nunavut classrooms. However, continued and consistent member checks served as a means to make sure that I was portraying the teacher's story and not imposing my own.

Inuuqatigiit is very different from other curricula that have been implemented in Nunavut schools. This difference is a source of strength as it provides a cultural context that students are familiar with upon which the teacher may build their program. If culture-based curricula like Inuuqatigiit are to succeed, promising practices must be identified which allow for the richness of the curriculum to be realized. This study of one classroom is an attempt to identify some of advantages of using Inuuqatigiit in the classroom as well as point out the challenges that one class encountered in its integration into existing junior high science curricula.

Throughout the study some of my beliefs were challenged, some refuted, and others formed that did not exist before. I believe I kept an open mind and heard what Kublu and the students said. This made me a better teacher, educator and researcher.
Access Procedures

After receiving permission from the University of Saskatchewan Ethics Committee an application was made to the Nunavut Research Institute (NRI) in accordance with territorial regulations. The Divisional Education Council (DEC) senior management staff was informed of the nature and possible benefits of the research as per NRI guidelines. Once approval from the DEC was granted the local District Educational Authority (DEA) and the Hamlet Council were approached for permission to continue the study. After receiving permission from these organizations the study was allowed to commence.

Ethical Considerations

As with all research studies ethical considerations came first and foremost to ensure there were no risk to the participants. Ethics contracts were given to participants and their legal guardians, where appropriate, in accordance with ethical guidelines outlined by the University of Saskatchewan and the Nunavut Research Institute. Contracts drew attention to the means by which anonymity and respect for the right of the individuals involved would be ensured. Potential risks to the participants were pointed out in advance.

Information about the potential risks and benefits of the study were presented to Kublu, the students and the guardians of the students prior to signing release forms. Kublu and the students were informed that they were free to change, add or delete sections of the text that were not accurate portrayals or jeopardized anonymity. Students and their guardians were informed that the Principal would act on their behalf to ensure
anonymity and although they did not have to perform member checks on their interviews they could do so if they desired. All participants were informed that they could withdraw their data from the study at any time. Participants were informed that audiotapes, transcripts and notes generated from the study would be kept in safe storage at the University of Saskatchewan for five years after completion of the study at which time they would be destroyed in accordance with University regulations. Copies of the ethics contracts used in the study can be found in Appendix A and Appendix B.
Chapter 4

Introduction

"Traditionally, the instruction of a child began by first having them simply observe a task being done. ... Learning and evaluation took place at the same time" (Inuuqatigiit Committee, p. 22)

When I first entered Kublu's classroom I felt very much like a child learning a skill for the first time. My eyes were wide open trying to capture all of the events and hoping to not miss anything that would be important for the study. Although I had been in this classroom before, this was the first time that I had felt apprehension. My role had changed and I wanted to do it well. What would I observe? What would I learn?

I soon realized that so many things were happening in the class and it would be impossible to watch all of them unfold. I was the child in terms of the research that I was conducting. This was a chance for me to grow professionally and personally as I watched Kublu interact with the students.

The question begs to be asked, "What did I learn from my time with Kublu and the students?" More specifically, "What were the advantages and challenges for both the teacher and students of incorporating Inuuqatigiit into a Nunavut junior high science classroom?" (the research question).

This chapter has been organized to describe the story of Kublu and the six students involved in the case study. The first of the next five sections will provide the reader with the general context of the community, school, and classroom presented as a
description of pertinent local culture in a snapshot of the first day of the study. Next I introduce the students and Kublu in the section "Participants." The third section provides the reader with an understanding of how Kublu identifies *Inuuqatigiit* integration in the context of her teaching. The final two sections provide data related to the research question, in which I depict the advantages as well as the challenges Kublu faced incorporating *Inuuqatigiit* into her classroom, respectively. It should be noted that these sections have been organized according to the information that Kublu has identified as advantages and challenges. Factors that Kublu sees as an advantage may be viewed as a challenge by another educator. For this reason these sections have been written based on her perspective.

Direct quotations from the participants are referenced according to when they were made and the line numbers of the transcript where appropriate. For example a quotation found on lines 386 to 390 of the transcript from the interview with Kublu on August 23, 1999 would be referenced as (99/08/23, 386-390).

**Context**

Kublu teaches at Iliharvik High School (pseudonym), in an isolated, mid-sized Inuit community located within Nunavut in Canada's Arctic. Like all other Nunavut communities, access is limited to planes and a barge that arrives in the summer months with supplies for the community. Stores, schools, local contractors and community members rely on these two forms of transportation for goods throughout the year.

In the summer and early fall, the sun shines on the community 24 hours a day. During this time it is not uncommon to see students returning home in the morning after
an all-night game of basketball. In late November the sun sets not to be seen again until the end of January. It is at these times that the citizens of the town often become “backward” and stay up all night and find it hard to get up in the morning. This is but one of many factors that make living above the Arctic Circle a unique experience.

Iliharvik High School is located in the centre of town surrounded by houses, the two local stores and the community hall. The school is small by southern standards, less than 200 students and a staff of less than 20 people. Everyone lives within a ten-minute walk from the school and other local amenities. This hamlet is small by southern Canadian standards.

The sense of community is overwhelming and the old adage, "everyone knows everyone" holds true. The time necessary to go to the store is not measured in distance but rather in the number of conversations that occur in the aisles and at the checkout counter. This is often where the best parent teacher meetings are held and local gossip is spread between residents.

Most students arrive at school just prior to the 9 am bell that signifies the beginning of homeroom classes. This is the first day of the school year and you can tell that many students are excited to be back in school.

Staff and students converse, in English, on benches outside of the main entrance. The use of Inuinnaqtun is rare other than the occasional phrase muttered between students. Elders are the holders of the language. Passing it on orally from father to son, mother to daughter over the generations has preserved it. The impact of residential schools can be heard in the community, as Elders speak a simplified form of Inuinnaqtun with their children, the parents of the students. Elders often refer to this new dialect as
“baby talk” as it is missing the richness of the language Elders speak to each other. The students are the second generation to suffer the effects of language loss. Most cannot communicate in the simplified Inuinnaqtun their parents use. Children in the community play using a broken form of English as the language of choice. As more students arrive they are wished a good morning in English by the daily welcome wagon of teachers and students sitting on benches in front of the main entrance. The students return the greetings and go off to their lockers to get organized for the day.

Five minutes to nine and staff members are called to the office for an emergency meeting. One of the students killed himself last night. In a nearby community a relative of some of the other students has also taken his life. Kublu notes that some of the students in her class are related to the student who has passed away. The staff members who are veterans to the community have seen this before and decide to go about the day as usual. The “first year teachers” seem shocked by the news but are desensitized, as they do not know the student. Counseling for students has been arranged; it will be a tough morning.

The bell finally rings and people make their way to homeroom for attendance and announcements. A significant number of students arrive after the bell, get late slips from the office and go off to their class. There does not appear to be any urgency to arrive to classes on time.

Kublu teaches in the only science lab in the school. Teachers often interrupt her classes to obtain supplies. The classroom is small and crowded with a "U" shaped arrangement of six tables. Kublu tells me that this makes it easier for her to circulate among the students. The classroom is neat with an overhead projector ready for the
transparencies that will be placed on it. The room is lined with cupboards that sit above the six sinks that act as science stations. Above the cupboards Inuinnaqtun words (atauhiq, malruk, pingahut, hitamat, ... , qulit) in the shape of an igloo line the wall with their English counterparts (one, two, three, four, ... ten) beside them. On the counter lies a laminated drawing of a food web created by last year's class. The students enter the class ready to begin another year of science. I wonder, "Will this year be the same as last year or will Kublu guide them on a totally different path than their previous teachers?"

It is obvious that Kublu knows each of the students as they enter. She wishes each of them a good morning and asks them to find a seat. Kublu spends the first few minutes taking attendance and going over the rules of the class. One student puts his feet on the table. Kublu looks at him and says, "I do not talk to feet." The student lowers his feet and rests his elbows on the table. It is clear that this is her class. Students will be allowed to have a drink in class but no food like potato chips as the bag makes too much noise. Students should come to class on time; if they are late they are to find their seat without disturbing others. When someone is speaking everyone else is to listen and face him or her. The remaining rules focus on issues such as lab safety that are standard to most school labs. Kublu notes, "If anyone breaks these rules they are not welcome here" (Journal Entry, 99/08/24). Kublu then hands out notebooks for taking notes off the blackboard and the overhead projector, recycled duotangs for handing in assignments, and the marking scheme. Student marks will be calculated on the following marking scheme:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation and Attitude</td>
<td>10%</td>
</tr>
<tr>
<td>Labs and Safety</td>
<td>20%</td>
</tr>
<tr>
<td>Assignments and Readings</td>
<td>20%</td>
</tr>
<tr>
<td>Tests (written, spot and oral)</td>
<td>15%</td>
</tr>
</tbody>
</table>
The first lesson on diversity begins. I anticipate seeing how Kublu and the students in the study interact and how culture is incorporated into this classroom.

The Participants

The Students

When I first approached the students to see who may be interested in participating in the study I was curious about who would volunteer. I was pleased with the final selection. The results had produced a good cross section of the class population. The volunteers are listed in Table 2. The teacher notified me that several of the students had records as high achievers while one of the students was on an Individualized Education Plan because of a hearing disability. I was excited about the group chosen and was looking forward to working with them.

Table 2: Student Participants

<table>
<thead>
<tr>
<th>Name (pseudonyms)</th>
<th>Sex</th>
<th>Age</th>
<th>Defining Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taklik</td>
<td>Male</td>
<td>15</td>
<td>Non-conformist</td>
</tr>
<tr>
<td>Kaoha</td>
<td>Male</td>
<td>17</td>
<td>Hearing impaired</td>
</tr>
<tr>
<td>Latisha</td>
<td>Female</td>
<td>16</td>
<td>Shy in class but popular with peers</td>
</tr>
<tr>
<td>Janette</td>
<td>Female</td>
<td>16</td>
<td>Personal issues outside of school</td>
</tr>
<tr>
<td>Betty</td>
<td>Female</td>
<td>14</td>
<td>High achiever</td>
</tr>
<tr>
<td>Catherine</td>
<td>Female</td>
<td>14</td>
<td>Boisterous</td>
</tr>
</tbody>
</table>

As I watched the students in the class I soon became aware how each student was unique. Taklik was a non-conformist and often came to class late. Kublu informed me
that she chose to let Taklik “have some slack” this year and this was resulting in more time in class instead of the principal's office. Several times during the course of the study Taklik came in late to class. In each of these instances he dropped his late slip on Kublu's desk, took his seat and asked a fellow class member what they were working on.

During the first interview I asked the group about science class and what the students liked and did not like. Taklik noted that he enjoyed the projects they did in science and especially those that involved animals (99/09/09, 10). He did not enjoy the quantity of questions asked in science class. For him there were too many and because of this he found science the next hardest class to math (99/09/09, 45). Although Taklik seemed to be a non-conformist in the class, he did perceive an importance to school, "If you don't learn at school you are not going to have a job" (99/09/09, 134). The prospect of a good job was not the sole motivator for Taklik. When asked why he came to school he noted that gym class was the main reason (99/09/09, 190).

Kaoha often had trouble in class due to his hearing loss and seldom wore his hearing aid. This created academic problems for him and has resulted in him being placed on an Individualized Education Plan. During the first interview it became apparent that Kaoha did not always hear the question that he was being asked as he often answered in a manner indicative of someone who had heard a different question. For example, I asked the group, "Do you ever learn things in science class that are like what you learn at home?" (99/09/09, 140). To which he responded, "What I like to do in science is to collect rocks" (99/09/09, 148).

Kaoha often worked by himself at the back of the classroom. Kublu told me that she had repeatedly tried to get him to move closer but he did not feel comfortable with
this. As a result, Kublu would often provide instructions for the whole class and then go to Kaoha's desk to repeat them for him.

Kaoha liked science class but found it “too hard” (99/09/09, 42) with words that were difficult for him (99/09/09, 52). This is not to say that he did not enjoy some of the aspects of science class, "What I like about science is the plants, animals and the water" (99/09/09, 68) and collecting rocks (99/09/09, 148). He also stated that school was important for getting a job (99/09/09, 114) and this seemed to be an important motivator. Kaoha came to school because: "I like school. I come to work, go to the gym and work hard to graduate" (99/09/09, 191).

Latisha was quiet and slow to volunteer information in class but would elaborate on the responses that other students made. Outside of the classroom and on field trips she was popular with the other students and always worked hard at the assigned task. She was often asked to participate in group work and was much more boisterous in smaller groups.

Latisha liked the experiments but did not like writing notes (99/09/09, 13). To her the labs made science interesting because she could learn about new things and do research on plants and animals (99/09/09). Much like Taklik, however, she found that "some science words are hard to understand like the science meaning and the vocabulary" (99/09/09, 48-49).

Latisha also felt that science was important as "you need a really good education to get a really good job" (99/09/09,136). For her the gym was not as important but the social aspect of school was, “I like school because I can see my friends here. I know I am getting a good education and getting work done" (99/09/09, 192-193).
Janette was quiet in the class most of the time. Occasionally she would produce a loud outburst when other students were teasing her. She noted in the first interview that she found the discipline policy strict and that her troubles were usually caused by horseplay and not getting work done" (99/09/09, 177-178).

Janette liked doing "the experiments and writing science reports" (99/09/09, 14) in science class. Janette also felt that school and science were important "because you need the qualifications to get a good job" (99/09/09, 137). She did not identify other factors for coming to school in the first interview as Taklik, Kaoha and Latisha did. Her main motivation for coming to school was "because I need an education" (99/09/09, 194). Janette did have trouble in school and would often keep to herself and be reluctant to interact with her class members. It is likely that her reluctance to interact with other class members was due to some of the difficulties that Janette was having at home and with the other students in school. Janette's personal problems outside of the school became such that she moved during the first month of data collection and did not participate after the first interview.

Betty and Catherine did not join the research until after the first interview was completed and were not asked all of the questions that Taklik, Kaoha, Latisha and Janette were asked about their attitudes toward school and science.

Betty was a high achiever in the class and was called upon frequently to answer questions. She was popular with the other members of the class and was involved in all of the class activities. It was evident that Betty liked science. She was often a leader in the small group work and frequently asked Kublu questions about the science topic at
hand. She completed all of her homework during the course of the study and often helped other students who did not have theirs finished.

Catherine was by far the most vocal person in the group. She liked science and wanted to share her knowledge. On several occasions she would stop Kublu to demonstrate her knowledge of the past year's work by adding to Kublu's comments.

Catherine often used scientific terminology in class without hesitation (Journal Entry, 99/08/30) often interrupting other members of the class when Kublu was questioning them. She seemed especially pleased when she was able to share her mnemonic for remembering biological classification schemes. "King Peter Came Over For Goodness Sake," (Journal Entry, 99/08/24) she blurted out to the class the first time Kublu mentioned the way scientists organized living things. When I asked Kublu about Catherine she noted, "Catherine is Catherine" in a manner that suggested that she had come to accept her interruptions and embrace her enthusiasm.

This was a typical group of teenage junior high school science students at Iliharvik.

Kublu

It has been said that everyone in the north has a story. During the study I learned many things about Kublu's personal and professional life story.

Kublu grew up in a small remote town in northern Ontario. She explained that the largely homogenous Caucasian population of her hometown paralleled the largely homogenous Inuit population of the town where she now resided. Kublu noted, "Everyone I knew was good, kind Christian, white, heterosexual and believed the same
things. I was pretty naïve about the world” (99/08/23, 25-27). It was not until Kublu moved away from her hometown that she became exposed to different cultures, including Aboriginal people (99/08/23). Kublu has been part of Canadian Crossroads in Africa, attended a summer mining camp on the tundra, attended two separate Canadian universities, and student taught on a reserve in Northern Ontario (99/08/23). Kublu noted, "The more things you are exposed to, the more you are going to be open-minded to understanding other people" (99/08/23, 858-859). This has led Kublu to study several different languages, including Inuinnaqtun, and to take an active interest in the cultural diversity that exists between her culture and that of other people. Perhaps it is these experiences that have allowed Kublu to keep an open mind about Inuit in the community and to become a part of it.

Kublu is part of the community. She has attended sewing classes at the local Elders Centre, she tries to attend as many things as possible at the community hall and she has stayed in the community in the summer to spend time on the land (99/08/23). In her words, "I do not want to live somewhere that does not feel like my home" (99/08/23,142).

Kublu has taken an active role at the school as well. She has been a team leader in the junior high school, coached sport teams, organized science camps, organized science fairs and planned land trips with other teachers on staff. Kublu is not the type of teacher that goes home after the bell ends signaling the end of the last class.

Kublu confesses, "I hardly, well I never, make a lesson plan" (99/08/23, 667) and she prefers to do things intuitively. She admits that this keeps her from getting “stressed out” when she is unable to follow them due to external factors or the presentation of a
"teachable" moment (99/08/23). Kublu believes that planned flexibility is the key to a good classroom.

Kublu sees her role as one that creates balance. "I like to think I might create some balance on staff because I think I have somewhat of a different opinion on lots of issues" (99/08/23,405-407). Perhaps it is these differences that have led her to teach a bit differently by bringing culture into the classroom and by taking the classroom out of doors. Regardless of the motivation Kublu has made an effort to incorporate Inuuqatigiit into her class.

**Kublu's Ideas about Incorporating Inuuqatigiit into the Classroom**

To me, Inuuqatigiit is a way of teaching the curriculum we have. It's not changing the curriculum; it is integrating Inuuqatigiit ways of thinking into the curriculum that exists. I haven't changed the actual curriculum you know, I've just adapted the ideas and thoughts that have been put into Inuuqatigiit into the other documents that were given. (00/01/16, 624-628)

The criteria used by Kublu to define integration of Inuuqatigiit in her science classroom were imperative to the study. The question therefore becomes, "How did Kublu define Inuuqatigiit integration in her classroom?"

It was not easy for Kublu to provide a concise set of conditions to determine if Inuuqatigiit was being integrated into a science classroom but she indicated several factors as vital to ensuring that Inuuqatigiit integration was occurring. The most predominant of these factors was students studying science outside of the classroom on the land. She noted,
For me, where I grew up, the land is important for my soul, but only when I am on my days off. I never thought of the land as part of my whole existence. Whereas if you talk to many people here, that is where they were born, that is where they had their whole living. (00/01/06, 483-485)

This theme (studying science outdoors) was evident throughout the interviews and the classroom observations. Kublu noted that her first experience in the north was taking students out on the land for a fishing trip (99/08/23, 190-192). In the past she has also taken her class out camping for several days to study science on the tundra (99/08/23, 189-190). During the course of my classroom visits the class made two trips outdoors. Kublu did not feel that this was nearly enough time outdoors. "I haven't been able to use the land," (00/01/06, 85) she noted in one interview. In her words, "I used to dream with an old principal here about all those things. I wanted to build a school on the land. I would put a wall tent up and take kids out there for weeks at a time" (99/10/03, 137-139). The land is the major consideration to Kublu when defining the use of *Inuuqatigiit* in her instruction.

Although being on the land is the major component of Kublu's definition of integrating *Inuuqatigiit*, it is not the only consideration. She noted that students should be interacting with an Elder, using Inuinnaqtun, and on the land learning in a comfortable environment (00/01/06, 73-74). When combining these three elements in the past she noted, "In this environment students wanted to do science 24 hours a day and they were excited about it" (00/01/06, 75-76). In previous years Kublu invited Elders in the classroom and on class trips out on the land to interact with and to teach students. She was not as successful at this during the course of the study because the one Elder whom
she invited into the classroom cancelled just minutes before class was to begin. This did not change her belief that Elders can pass on this knowledge to students and that this is valued. This belief is illustrated in the story of one of typical students:

He is being raised by his grandparents and spends the majority of his time on the land taking care of them and he is only [in his mid-teens]. He is the one who brings them home ice, hunts, fishes, and spends a lot of time on the land. He has this very solid understanding of how everything is put together. He knows when the ice is going to be solid and when it's not. Why the ice on the lake might freeze differently than the ice on the ocean? How to fix his snow machine or any kind of practical things we would like to think we should teach in the context of the four walled science classroom. He has a total understanding of engines and machines and interactions in the environment, all of those units we have in our textbooks. He probably wouldn't do very well on my tests however, depending on how I wrote them. He would have a hard time reading.

(99/08/23,458-468)

The student’s experiences have enabled him to gain a better understanding of the world around him and, through observation, become witness to many phenomena that have been explained or described by scientific principles in the classroom. In this regard he is able to bear witness to the events that are occurring around him and explain them in the context of his life experiences but not in the terms that are accepted by the scientific community. It therefore becomes the task of the teacher to relate the experiences that he
has encountered to the world of Western science in a manner that is meaningful and acceptable to him.

In this respect Kublu sees the role of the teacher as one of "facilitating the learning of someone's own beliefs, and bringing in other resources and exploring it. It would be no different than me teaching about Africa" (99/08/23,354-357). Kublu suggested that the role of the teacher is to provide an opportunity for students to interact with their culture within their class. This could happen in a number of ways according to Kublu including, but would not be limited to: Elders participation in the class, science studies conducted on the land, inclusion of Aboriginal language, and other items that would be part of the local culture. This implies that the teacher must determine the activities that are endemic to the local culture and facilitate their integration into the curriculum. Kublu noted that she often invites guests into her classroom to discuss "Western science" and Inuit ways of knowing. The local wildlife technician, representing Western ways of knowing, and Elders, representing Inuit ways of knowing, are often asked to participate in Kublu's class to discuss parts of the science curricula. In many cases inviting Inuit who have knowledge of both worlds crosses the borders between Western ways of knowing and Inuit ways of knowing. For example, "there is no way I am going to talk about wolverines. I bring Arnold (a pseudonym) to talk about wolverines. He's got so many skills the kids love listening to him so much" (99/08/23,744-746).

The use of language is also important in Kublu's definition of incorporating Inuuqatigiit into her classroom (99/08/23,227). In fact Kublu mentioned that anytime it is possible to use words in both English and Inuinnaqtun to describe a body part, animal,
plant or other object, she makes an effort to do so (99/08/23,517-518). This happened
daily in the class both during group discussions and individual instruction. On several
occasions Kublu would not know a particular word and would ask the students to
translate it for her. Kublu felt this was important to provide exposure to Inuinnaqtun for
the students as well as become more familiar with it herself. Exposure often happened
orally as Kublu would use an Inuinnaqtun word instead of its English equivalent when
discussing living things. Substitution of Inuinnaqtun was particularly prevalent when
animals and plants were part of the lesson. Kublu also asked the students to generate
posters and displays for the walls that included Inuinnaqtun titles and translations where
possible (this will be discussed later in this chapter).

While teaching and during a subsequent interview, Kublu illustrated several
differences between Inuit and Western ways of learning. "It is a good reminder of how
the Inuit kids learn through observing their Elders and then by doing, doing, doing"
(00/01/06, 262-265). Kublu argues that this differs from how students are taught in a
traditional Western sense where, "We do one lab and then expect them to move on kind
of thing and never have that kind of reinforcement" (00/01/06, 265-269). Although
respecting cultural differences are part of integrating Inuuqatigiit, Kublu believes that,
this is only a first step. The main role of the teacher is to teach and enhance Inuit culture
in the classroom. Kublu sees this being accomplished through the inclusion of
Inuinnaqtun in the class and becoming more aware of the subtleties of the culture and
respecting those subtleties. For example:

You should be teaching in a respectful manner in a way they [the students]
are used to; like the whole thing about making sure you don't force a kid to
say yes or no to something. They don't think it is polite. I forget that all the time. My understanding is that it is not polite to say "no," so you shouldn't put a person in that position. There are all kinds of things that are a side of the science classroom. (00/01/06, 199-203)

These aspects of *Inuuqatigiit* integration are seen as subtle things by Kublu but are important to ensuring that the class is truly following the philosophy of *Inuuqatigiit*.

The predominant method mentioned by Kublu for incorporating *Inuuqatigiit* was the inclusion of northern examples (99/08/23, 722). Kublu said, "I have mostly tried to find northern examples of what I am teaching to help the students understand the concepts" (99/10/03, 352-353). Kublu gave the following example: "[when] talking about sexual dimorphism, rather than the peacock, which is in the textbook, you use the qingalik [male king eider duck]" (99/08/23,724-726). She notes, "That's *Inuuqatigiit* in the classroom at a basic level in regards to content but that is only part of *Inuuqatigiit*" (99/08/23,730-732). The use of examples, although the most visible in the classroom, is also little more than surface integration. In one instance Kublu attempted to extend this while talking about the life cycle of a kumak (warble fly). She noted not only the Inuinnaqtun and English name of the species but also how Inuit traditionally relied on the larva of these flies for nutrition. Students responded to the example of the kumak and told her that they had seen them, eaten them and knew this information because their parents and Elders had passed it on to them. Slides from the local wildlife officer were also presented to the students to provide visual cues to help them remember their experiences (Journal Entry, 99/09/02).
The inclusion of these examples is only surface *Inuuqatigiit* integration and does not constitute true *Inuuqatigiit* integration according to Kublu. Kublu viewed her unit on plants as particularly effective in incorporating all aspects of *Inuuqatigiit*. In this unit the students were to become familiar with a field guide, *Barrenland Beauties*, on plant identification. In the process the students would: (1) name various local plants in Inuinnaqtun, English and using scientific nomenclature, (2) identify local plants in their natural habitat, (3) identify their traditional uses, and (4) have an Elder come to the class and use ipirakhat (arctic cotton) to light a quilliq (stone lamp) and talk to students about traditional plant uses as a culminating activity. I was able to witness these events over three class periods with the exception of the Elder's visit who was unable to attend and cancelled just prior to the scheduled class (Journal Entries 99/09/07 - 99/09/09). Indeed it is necessary to have a combination of land based activities, Elders' participation, language integration, cultural differences and northern examples, all come together to integrate *Inuuqatigiit* properly according to Kublu.

In one interview Kublu shared a dream with me about the ideal situation for *Inuuqatigiit* integration.

I used to dream with an old principal here about all those things [*Inuuqatigiit* based instruction]. I wanted to build a school on the land. I would put a wall tent up and take kids out there for weeks at a time. We talked about finding funding like the stay-in-school funding. We put out different proposals. I wrote this sixty-page proposal for outdoor leadership, science, land and leadership school and sent it to different groups and organizations and didn’t get any funding. To do something
like that you would need to radically change the whole system. The two
don’t fit; you would have to start with everything as simple and as huge as

[changing] the whole curriculum. (99/10/03, 137-144)

Although this was a dream and Kublu did not envision it occurring anytime soon, it is
obvious that she has a clear picture of what incorporating Inuuqatigiit is in her mind. The
questions now begs to be asked, "What are the advantages of incorporating Inuuqatigiit?"
as it would make little sense to put in the effort if there were no rewards forth coming. In
the final interview Kublu told me that she felt unsuccessful at integrating Inuuqatigiit
during the study (00/01/16). This presents the need to ask another question, "What are
the challenges that are preventing her from integrating Inuuqatigiit the way she would
like?" The next two sections will address these issues in turn.

Advantages of Incorporating Inuuqatigiit into the Science Classroom

The participants in the study identified several advantages of integrating
Inuuqatigiit into their science classroom. It should be noted that the identification of an
issue as either an advantage or challenge, is largely dependent on perspective.

Accordingly, I have written from the perspective of the participants, Kublu and the
students. During the final interview I asked Kublu to tell me some of the disadvantages of
using Inuuqatigiit in her classes. She responded with the following comment, "I think
there are only advantages for using it [Inuuqatigiit]. I do not think that there would be
any disadvantages" (00/01/16, 35-336). Over the course of the study she identified the
advantages that she spoke of in the preceding quote. These will be clarified in the
remainder of this section.
The use of *Inuuqatigiit* in the classroom provides a familiar context for students. During the initial interview with Kublu she spoke of the best approach to teaching science, "The best way to teach science is to start the kids from what they know and that's just good teaching. It would happen anywhere if there were *Inuuqatigiit* or not" (99/08/23, 711-713). The question then becomes, what do the students know and what aspects of the curriculum are endemic to Inuit culture?

While being interviewed, students identified a number of different activities as being endemic to Inuit culture. Taklik identified "hunting and all that exciting stuff" (99/09/09, 86-87) as a key component to being Inuk. Latisha saw sewing and language (99/09/09, 89-90) as major factors. Kaoha mentioned that hunting and speaking in Inuinnaqtun (99/09/09, 99) are important parts of the culture. Janette had a much wider definition of being Inuk, "I would say that being Inuit is the way we live in the Arctic. Picking wild berries, wearing caribou clothes, the animals we use" (99/09/09, 91-92). *Inuuqatigiit* identifies these activities, as well as many more, as being important aspects of Inuit culture. Kublu therefore sees reading *Inuuqatigiit* as a means for her to familiarize herself with the north and gain knowledge and skills that can be used in the classroom. This in effect allows her to use northern examples and "[start] the kids where they are at and [base] as much of your science content on reality here" (99/08/24, 722-724). In Kublu's opinion this is "just basic teaching philosophy. If you start with what they know and where they are going then you are going to bring them further" (00/01/16, 187-188). This can create a snowball effect and "if the kids know the topic they are going to be more interested in it and they are going to want to learn more (00/01/16, 196-198). Added interest in a topic is best created when the information is first presented in a
context that is familiar to the lives of the students. *Inuuqatigiit*, the document, is a valuable source of this information to someone not familiar with the culture.

Kublu often changes the examples presented in textbooks from unfamiliar ones to more northern relevant models. As mentioned earlier, when talking about adaptations Kublu uses the example of a kumak (warble fly) and its life cycle to show the different adaptations its body structure goes through to suit its environment (Journal Entry 99/10/02). A similar example was shown in the textbook related to a butterfly. As students had first hand experience with the kumak larva (a food source) they were very interested in the topic. During the final interview I asked students to recall some of the northern examples they had used in class so far this year. In particular I asked them about the lesson on the kumak that happened three months earlier,

R: Anything else? What about the warble fly [kumak]?

C: We did that too.

L: Life cycle of the warble fly.

R: Did that make sense to you when your teacher explained that to you?

B: Yes.

L: Yes.

T: Yes.

R: Do you still remember that lesson? Do you remember how the warble fly life cycle goes?

C: Yes.

R: How was it? Can you explain it to me?
C: They grow eggs on caribou legs and let them stay there. Then they come out, go out, whatever, make more eggs and then go back up. I forgot.

B: Egg, larvae, pupa, adult.

C: Yes and when they come out of the caribou leg they are only alive for one week.

L: When they become an adult.

C: Short life. (00/01/11, 449-465)

Catherine indicates in her response that she forgot how the life cycle of the warble fly goes but this is after she has told me the full cycle. Use of a northern example did seem to make it easier for students to remember the concept on life cycles as it pertains to the kumak. In a separate interview Kaoha told me that he preferred science class to the other classes that he took because, "I like the examples and the definitions" (99/12/12, 141). For Kublu to use these examples she must have a source from which to draw upon. The Inuuqatigiit document is one of these sources.

Kublu identifies Inuuqatigiit as a source for her to better understand her students, "it is a document written so that if you read it, it will help you understand more of where your kids are coming from" (99/08/23, 334-335). In effect one of the advantages of using the document is to provide a contextual base upon which the teacher can build her lessons to provide links for the students. This can be extremely important for a teacher who has not lived within the Inuit culture and arrives in the north in a similar situation to Kublu; "when I first came here I thought how in the hell am I ever going to teach Inuit culture?" (99/08/23, 350-351). Experience can also be a factor in developing an ability to adapt
resources to a context more familiar to the students. "I can adapt the whole textbook to my own content because I have been here long enough" (99/08/23, 727-728). Although this is an advantage for the teacher and students, we need to ask, "What does Kublu do with unfamiliar topics and those for which there are no northern resources?"

The use of community resource people is not only an important part of Kublu's class but also a valuable source of northern relevant information. While I was observing the class I witnessed one occasion when the Sustainable Development technician came into the class and provided instruction on lemming trapping. Students received a briefing from the technician on the purpose of lemming trapping and the role of lemmings in northern ecosystems. Students were then able to use the Sustainable Development vehicle to go to the site where the lemming trapping occurred and help the technician count the lemmings that had been caught during the night. These results would then be used as part of ITEX study that is carried out across the north by wildlife officers (Journal Entry 99/08/26).

The use of this resource person served Kublu from a variety of perspectives. Five are discussed here. First, Kublu was able to tap into resources that had been supplied by another government organization. The lack of vehicles in the school, and community, can make it hard to get away from the school to do field studies in science. Using the Sustainable Development vehicle at no cost was a definite bonus for the class.

Secondly, the ability to have the technician provide the background and methodology for the study gave students a chance to feel like they were part of "real science." It was obvious that the students were excited about the opportunity to go on the land to help out (Journal Entry 99/09/26). It should be noted that the science the students
learned in this context is firmly rooted in the world of Western science. This does however provide an opportunity for exposure to this side of science and give the teacher a chance to bridge the gap between the world of Western science and the world of the students. Unfortunately I did not witness this happen in this particular instance as part of the main lesson. Kublu did have several side conversations with students on an informal basis which did allow them to teach her about the plants on the tundra but time constraints did not allow Kublu enough time to explore these in detail. This will be discussed in more detail in the next section of this chapter. Kublu did ask students to bring a piece of the tundra back for study in the lab at a later date. Due to her illness and other circumstances she was unable to fully explore this with the students.

Thirdly, having a resource person allowed Kublu to observe a specialist and watch another person teach. These opportunities allowed Kublu a chance to become a student and expand her knowledge of the north along with the students. Kublu did note that on instances such as these it was important to "be open to have other people other than yourself be the expert" (99/08/23, 752) which is not always easy. Perhaps it is Kublu's attitude that has helped her become a student of Inuit culture: "It's a continual learning process. Just two weeks ago after talking to a woman in Rankin I learned a few more things. It's an ongoing process trying to figure out a different culture that I happen to be working in" (00/01/16, 171-173). Kublu's desire to learn about this is definitely a positive prerequisite of integrating Inuuqatigiit in the classroom for her.

Fourthly, four out of five of the students indicated that they preferred labs to take place outside.
R: Why would you want science classes inside or outside? You have all made
choices, why did you make your choice?

C: There are lots more materials outside.

B: Outside, so you could get a lot more fresh air.

L: Outside so you could ... I don't know.

T: Learn more stuff outside.

R: What can you learn outside that you cannot learn inside?

T: About the plants, the earth and stuff. (00/01/11, 254-269)

It can be argued that students who enjoy the class more will learn more than those who
are not enjoying it. Doing labs outside would therefore indicate that students are more
likely to do better in the more pleasant, outside, environment than in the school.

Finally, the shared experience between the students and teacher was something
that Kublu could draw upon for reinforcement in her class at a later date. For example,
while on the land the teacher took time to discuss the plants that were growing on the
tundra and the interaction that the lemmings had with these plants. As part of the
discussion the teacher was able to use this opportunity to gather materials to set up a
herbarium in her classroom. This herbarium was often referred to in later lessons on
plants (Journal Entries 99/09/07 - 99/09/09). It became a common frame of reference
from which Kublu could draw upon to help students understand concepts such as
diversity and ecosystems. Although the technician's visit to the class was the only
incident of people coming into the class during my observation time, Kublu noted several
other times that she had invited people in during previous years. These opportunities did
not happen as much during the study as Kublu would have liked. “I don't know if I have
been effective at integrating *Inuuqatigiit* this year" (00/01/16, 80-81), and referred to events that had happened in the previous year as examples of good *Inuuqatigiit* integration.

Kublu revealed one such incident that happened the year before.

Arnold will come in on a volunteer basis. If I'm going to talk about wolverines there is no way I am going to talk about wolverines. I bring Arnold to talk about wolverines. He's got so many skills the kids love listening to him so much. You could get every kind of trapping, ethics, traditional hunting, the whole environmental monitoring, where he works at [the mine], life cycles, you can get R&K selection, everything out of Arnold's wolverine study and he's fantastic. He's made a video and he's made a package and he's so great to come into the classroom. (99/08/23 743-750)

The visitation by Arnold, or any Elder, is much different than the one by the technician. Although Arnold did not take the students out in the field, as an Inuk, Arnold was able to relate the culture of the students much better than the technician was able to. Arnold, as the holder of knowledge, provided not only a good background in the Western science concepts but also the traditional knowledge and beliefs about wolverines present in the community. Much of this information is not contained in *Inuuqatigiit*, as it is part of the Inuit philosophy that goes deeper than the words on the page. To live it is the only way to really be able to understand it. Kublu alluded to this when she was talking about the relationship that Inuit have to the land (quoted earlier):
Inuit and the land are synonymous. For me, where I grew up, the land is important for my soul but only when I am on my days off. I never thought of the land as part of my whole existence. Whereas if you talk to many people here, that is where they were born, that is where they had their whole living. (00/01/16, 482-486)

The information and feelings that Arnold can bring into a classroom are far deeper than those that someone from outside Inuit culture could pass on to students. It is indeed unfortunate that I was not able to witness Arnold's visit.

The use of *Inuqqatigiit* in the classroom also puts the students in a position to be holders of valued knowledge. During my observations of the class this was especially true. On several occasions the teacher would ask students for the Inuinnaqtun version of an English term. On one occasion Kublu tried to pronounce the name of an animal in Inuinnaqtun and pronounced it incorrectly. The students quickly corrected her and the whole class practiced it together (Journal Entry 99/10/14). During an interview Kublu told me that she prefers to give students a chance to name plants and animals in either language, as they often do not know the English names of the organisms (99/08/23). She also told me of her plans to have students monitor the return of birds in the spring. This event provides an opportunity for the class to learn the names of the birds in both English and Inuinnaqtun,

We put the date down, the name of the birds in both English and Inuinnaqtun and we just list first sightings. The snow buntings, amaunikkaaq, they come back first and they do every year. Last year it was April 10th and the year before that it was April 23rd. You can get
them to start thinking about what is going to come next and do bets on it.

... for here we did it in both languages, "Oh, it is a qingalik." They do not know it is king eider but big deal. They can look it up in the bird book and, "Oh it is a king eider, OK" and I learn the Inuinnaqtun too. (99/08/23, 521-531)

Kublu viewed these activities as an important part of Inuinnaqtun language development in her science class. Exposure to new words helped students to gain a better grasp of their heritage language. During an interview she indicated, "most people do not know the names for things they do not eat" (99/08/23, 490-491). The use of these words in the classroom provides one more venue for students to become more familiar with these terms and expand their Inuinnaqtun vocabulary.

Kublu admitted that she found Inuinnaqtun to be a complex language and that she has learned some of it but was a long way from mastering it (99/08/23). Students on the other hand used Inuinnaqtun at home to varying degrees depending on their situation. When Latisha discussed the amount of Inuinnaqtun used at home she revealed, "at home our parents mostly talk our language" (99/09/09, 108-110), while Janette told the group that she sometimes does not understand what her parents are talking to her about (99/09/09, 110-111). Betty however noted that she would have a hard time talking to her grandparents as she does not speak Inuinnaqtun and her grandparents do (99/12/12, 40-41). The varying degree of understanding of Inuinnaqtun for the students ranged from those who knew a few phrases to those who could carry on a conversation with others in the language, as evidenced in the following exchange:

R: When you are home what language do you speak?
C: Mainly English.

B: English sometimes Inuinnaqtun.

M: English. When my parents do not want me to know about something or when something is going on they speak Inuinnaqtun.

T: English.

K: English.

C: When my mom and dad are talking Inuinnaqtun I know what they are saying. Even if they are talking behind my back.

R: Do your parents or grandparents speak Inuinnaqtun to you a lot?

C: Yes.

B: Yes.

L: Yes.

T: Yes.

K: Yes.

R: Do you understand what they are saying?

C: Sometimes.

B: Sometimes.

L: Only the usual words.

R: Like what?

L: Like, work and do dishes, something like that.

T: No.

K: Sometimes.

R: How does it make you feel when you do not know what your parents are saying?
C: It makes me feel funny because it is our tradition and we are supposed to know what
they are talking about.

T: It doesn't matter to me.

R: Do you guys find that you ever speak Inuinnnaqtun?

C: Mainly the easy words.

R: Like?

C: Thank you and whatever. Quana [thank you]. I do not know.

T: Nope.

R: So you would never be out with your friends and speak Inuinnnaqtun at all.

C: No.

B: Sometimes.

L: No.

T: I do that some times.

C: Only the bad words.

K: No.

R: You were going to say something.

B: No.

R: You said sometimes, I was wondering what you meant by sometimes. Can you give me an example?

C: We say humi [where], huna [what] or quanerikpin [how are you] those easy words.

R: So more phrases.

C: Yes.

B: Yes. (00/01/11, 113-159)
This conversation demonstrates not only the lack of exposure that students have to Inuinnaqtun but also the lack of understanding about the language. Devaluation of the language occurs when students are not able to see its importance in the school. If Kublu were to omit Inuinnaqtun from the science curriculum it would create a sense that it is not important in school. Therefore the use of Inuinnaqtun in the classroom helps to reinforce the value of the language as well as provide practice and additional vocabulary for the students to use.

The students who are able to speak some Inuinnaqtun are able to pass on their knowledge to the other students in the class. This is important, as students require opportunities to not only hear the language, but to speak it as often as possible. Having student experts in the class to help others with the language creates a form of peer modeling that encourages students to think of Inuinnaqtun as a valued part of their lives. Inuuqatigiit notes that although the school will not save a language, it is a vital component: "Language can not be saved by the school, it has to be spoken in the homes for it to be strong in the community. The school can teach some of it and support it" (Inuuqatigiit Committee, p. 18). The promotion of the language in the classroom helps Kublu meet one of the main goals of Inuuqatigiit as well as include part of her definition of Inuuqatigiit integration in her classroom in a manner that reinforces language.

This was particularly evident when students were asked to create a poster that displayed not only the English and scientific names of a local plant, but also the Inuinnaqtun name and the traditional uses of the plant. During one interview Betty noted, "We tell our teacher what the meaning is and say the name in Inuinnaqtun" (99/12/12, 26-
27). When asked if she would like to speak more Inuinnaqtun in science class Betty said, "It would be more fun if we talked more Inuinnaqtun" (99/12/12, 34-35).

By promoting the use of Inuinnaqtun in the classroom Kublu attempts to help students find value and pride in their language as well as learn it, "Well even just the language. I love learning all the names, remembering ...I feel pretty good about my knowledge base of the plants and animals" (00/01/16, 228-230).

Kublu's lack of knowledge about Inuit culture has meant that she has to seek sources of this knowledge to incorporate it into her class. As mentioned earlier one source lies in the community with people like Arnold. Another source is the Inuk Language Specialist in the school. Although I was not witness to interaction between Kublu and the Language Specialist while I was in the classroom, Kublu did recount several stories from the previous year when they had team-taught. Working with the Language Specialist has given Kublu a chance to learn from her and grow professionally. During an interview with Kublu she told me the following story from the previous year,

... the Language Specialist and I would be planning something. I used to get so excited we could stay until 9:00 at night doing something. I think anytime you are excited about what you are doing there are advantages for you. There is also the whole feeling of pride when your kids are doing well. So if you are doing it in a way they are excited and wanting to learn then they feel better and you feel better and it kind of feeds off each other.

(00/01/16, 220-225)

The advantage of incorporating Inuuqatigiit in this case is a personal one for Kublu. Kublu likes to learn more about other cultures. Kublu argues, "I love learning the
traditional uses of things. That was something that I had to research myself before I could teach it to the kids" (00/01/16, 230-232). Working with the Language Specialist provided her with a medium through which she could more easily make these connections.

Another source of traditional knowledge that Kublu used in her classroom was the Inuinnaqtun consultant who worked at the school board office. I was not witness to the consultant working with the students but Kublu did tell me a story about her coming into the classroom.

The Inuinnaqtun consultant came in and we did it [skinning and dissecting] with the seals. We learned the whole process of how to quarter meat. While we were doing this there were different parasites in the meat and then we learned about them from the wildlife technician. He's coming in before the twelves switch next semester to do the whole talk on parasites. It has been fun to learn that from people outside the school system because they certainly know all the parts about the meats. They know what they are supposed to eat and what they are not supposed to eat and then you can tie that in. The Language Specialist and I did a whole unit together with the community health nurse from the Health Centre on health, Northern food, the contaminants in the food and which foods you can eat. For example, you don't eat the livers. We tied that into the food chain and what bioaccumulation and magnification were. All those kinds of things I would never have been able to do without community members
who came in to help. It was certainly fun to learn all that stuff. (00/01/16, 240-252)

Kublu’s desire to learn more about the traditional and scientific aspects of seal meat are evident throughout this story as a blending of both worlds is portrayed. The inclusion of representatives from both Inuit and Western worlds gives students a chance to look at the activity from both perspectives.

One aspect that could be overlooked about this story is the pedagogy used by the consultant. Demonstration is a key component of Inuit learning and students would often watch a task being completed prior to trying it themselves. When it came time for students to try a job, they would perform smaller tasks eventually building up to performing the complete job (Inuuqatigiit Committee, p. 22). This is different than current pedagogy advocated for in science classrooms that promotes discovery based learning. The inclusion of the language consultant not only gave Kublu a chance to become exposed to this method of teaching, it also allowed the students to be taught in a manner that is similar to how their parents teach them. Kublu told me how this was different than her practices in the classroom,

The language consultant just did it and the kids watched. They actually asked fewer questions. It's more of a watching process. There has been things like that I had to learn to do more demonstrations in my classroom although demonstrations should be important in a Western science too but it is a good reminder of how the Inuit kids learn through observing their Elders and then by doing, doing, doing. That reminder is important.

Talking to the Language Specialist about the way they sew the same pair
of mitts over and over until the kids know without reinforcement. We do one lab and then expect them to move on and never have that kind of reinforcement. (00/01/16, 260-268)

Team teaching with the Language Specialist and the language consultant gave Kublu a chance to examine her teaching practices and adjust them in a manner that is more indicative of the pedagogy that her students are used to in their home lives. It is these subtle things that can happen in a class that can make a difference to teacher-student rapport.

Kublu noted the importance of respecting cultural differences. She explained that the word "please" does not exist in Inuinnaqtun. She learned to respect this difference and not demand that students say please to her in an effort to teach them to be polite in her culture (00/01/16). Kublu also expanded on the issue of politeness in Inuit culture, "There are also subtle things of politeness that I learned from the Language Specialists such as not to walk over someone's legs or don't lie down when sewing. She has taught me many things like that" (00/01/16, 288-291). If Kublu had not team-taught with people who were from the Inuit culture it is doubtful that she would have been aware of some of the subtle difference in culture. Although these may not seem like large issues they can affect the ability of a teacher to interact effectively with students. Inuuqatigiit can play a role in guiding a teacher concerning what questions to ask community members in order to learn these differences and learn how to respect them.
Challenges to Incorporating Inuuqatigiit into the Science Classroom

Although Kublu identified many advantages of integrating Inuuqatigiit into the science classroom she pointed out far more challenges. Some of these challenges surfaced due to health and family issues pulling her out of the classroom. As mentioned in the previous section, Kublu is quick to note that her success at integrating Inuuqatigiit was much greater the previous year. With this in mind the reader should consider these challenges in light of Kublu's situation while the study was occurring.

Although Kublu faced many challenges integrating Inuuqatigiit into her science classroom, the one that frustrated her most was having the class for an hour and a half, five days a week. During the previous year Kublu had her junior high school class for the entire day with the exception of an Inuinnaqtun class that was taught by the Language Specialist. This year, three of the five classes Kublu spent in junior high were for science, and two classes were for health. The remainder of the time Kublu spent teaching high school science. This arrangement was called "teaching on rotary." Although sharing the teaching load of the junior high class made her job easier from many perspectives, it made it far more difficult to integrate Inuuqatigiit:

I think it’s harder when the junior high is on rotary. This is the first time I have been on rotary and it’s a hell of a lot easier for me. My job is taking less energy but it is not as successful. It is okay for the high school because the courses are specific and there are departmental exams but I am realizing how important not being on rotary can be in the junior high.

(99/10/03, 274-278)
In the course of the interview Kublu told me that not having the class for the entire day meant that she could not plan thematic units, team-teach or “look at exciting things to make school interesting for them” (99/10/03, 271-272). When weighing the merits of an easier teaching assignment versus more exciting classes, Kublu clearly wanted to make sure that the students had exciting classes as the class did the previous year. This was not only better for the class but also better for her as she enjoyed it more.

Opportunities to teach thematically were not as attainable this year for Kublu as last year. She found it hard to find time to get together with her colleagues to plan. This was especially true of the humanities teacher, “I should be able to get together with the [humanities] teacher of the junior high class and plan some cross-curricular lessons using what he is teaching and what I am teaching but we haven’t done that at all” (99/10/03, 268-270). For the teachers finding a mutual time to work on lesson planning was not easy and they did not manage to do this during the course of the study. Not following a thematic approach to lesson planning created a disjointed curriculum. This approach to education is very different than the holistic approach to education that is promoted within *Inuuqtigiit*. Kublu felt that a class that was not on rotary would create a much more holistic approach to education.

I think in the way our classes are set up we are showing the Western view of the world in that it is the Descartes view where everything is separated into little boxes instead of one holistic picture. Whereas I would say in Aboriginal culture things are more in a cycle, in a circle and connected. We do a real good job in Western Culture of segregating everything so just in the way we build our classes and our life and the way we define our
jobs and time and all of that is a way of defining science. The way we see things as separate little boxes as if the mind is separate from the body and the spirit. (00/01/16, 439-438)

The rotary system was one thing she definitely wanted to change, and when the opportunity arose Kublu was "going to suggest that the Junior High isn't on rotary anymore" (00/01/16, 83-84).

Kublu identified time as another challenge to Inuuqatigiit integration. During all three interviews Kublu noted time as one of the major limiting constraints to effective Inuuqatigiit integration. The time issue manifested itself two ways: (1) time in terms of the one and half hour time blocks, a consequence of rotary, and (2) the total time the students had to do science over the course of the year, 125 hours.

In previous years Kublu was able to adjust her allotted time on a given day for a class. This provided flexibility so that she could plan longer lessons on the land. These activities included a fish camp, a science camp during the summer months and a land camp the first four days of class (99/08/23). In each of these cases there were no bells that dictated the end of the class. In fact Kublu felt the bell kept her from going out on the land as much as she would like, "I have felt that the bell has put lots of constraints on the ability to do things in all my classes. I haven't been able to use the land" (00/01/16, 84-85), because students must be in school at the end of the period to go to their next class.

During the second interview with Kublu she told me, "To plan with Inuuqatigiit takes way more time but that's what I enjoy about teaching" (99/10/03, 342). This seemed to be one more instance where additional demands were placed on the teacher's
time. For Kublu this was worth it. But this may not be the case for other teachers who are not willing to put in the extra effort to develop lessons with Inuuqatigiit in mind. As the study progressed and Kublu’s personal life began to affect her teaching, her willingness to put in the extra time was in conflict with the time she had available. Soon after she had been sick for several weeks, Kublu said, “The only time I’ve had subs this year was when I was sick. This is the first year I’ve ever been sick so it was a pretty big deal” (99/10/03, 376-377). The lesson plans prepared for the substitute did not include Inuuqatigiit principles and content. The reasons for this were twofold. First, she has “never had a sub in who was Inuit” (99/10/03, 396), and therefore she felt that the substitute teacher would not be familiar with Inuuqatigiit or the guiding principles behind it. This meant that Kublu would have to spend even more time planning to make sure that Inuuqatigiit principles and content were included in the lessons. This was simply too much effort for Kublu as she was writing her lesson plans in the hospital and at home once she returned to the community. Secondly, “When I’m preparing a sub-plan I think mostly of the easiest way to have my class not disturb the rest of the school. I focus on task work that the majority of my class will be able to do without working at their frustration level” (99/10/03, 404-406). Examples of the task work that she spoke of included, “Crossword puzzles, videos, sheet work, questions and answers, things that they can get done, feel they’ve done, feel like they accomplished and require very little assistance from the sub” (99/10/03, 408-410). These activities included little cultural relevance for students not only in content but also in the overall pedagogy of Inuuqatigiit integration. It can therefore be said that circumstances that took Kublu out of the classroom posed a challenge in regards to integrating Inuuqatigiit within her class.
As noted earlier, Kublu’s definition of effective Inuuqatigiit integration relied heavily on going out on the land. During the course of the study she tried to go out with the students several times to engage the students in hands-on science but was prevented when it was raining, too cold or there was a blizzard. This becomes more problematic as the school year progresses and the weather turns colder. Kublu told me how this frustrated her: “It’s now cold and miserable out and I had two fun labs I wanted to do outside that I couldn’t do now. I built transects for a lab I designed but I can’t do that now that the plants are gone. I’ll probably wait until winter is here since this is the middle season when it’s hard to go outside. It’s pretty miserable out so I’m frustrated about that” (99/10/03, 43-45). The Arctic plays a huge role in the ability to go outside with the class. Although Kublu recognized that she had no control over the weather she also saw it as a challenge to integrating Inuuqatigiit.

Kublu made many references to departmental exams as a challenge. These are exit exams that students must take in many grade 12 courses. The exams for Nunavut students are administered though the Education Ministry in Alberta with the exam composing 50% of the students’ final mark. They contain no Inuuqatigiit content. Although these exams are not administered until grade 12, Kublu felt pressure to prepare the junior high school students. On one occasion she told me how the departmental exams affected her assessment practices,

Many of them hadn’t been given exams before and they took them very seriously. We spent two or three days studying and learning study habits. It brings together the whole point of having organized notes and having everything in an orderly fashion to go back over them. The skill of being
ready to write big tests is one of my jobs. These kids have to write departmental exams in grade 12 and if they don’t learn how to answer the questions they are not going to be able to pass. They did not use to guess on multiple choice. Half of the departmental exam is going to be multiple choice. I tell them to go ahead and guess and not leave blanks. They need to learn how to do all those things and go through that anxiety of how to prepare for them so that they feel less anxiety at the grade 12 level.

(99/10/03, 93-102)

This view of assessment is different from the assessment practices presented in *Inuuqatigiit* that promote “learning and evaluation [taking] place at the same time” (Inuuqatigiit Committee, p. 22). I later asked Kublu how she would evaluate students if there were no departmental exam. She replied:

Sitting down and just talking with them and having them share what they think. There would be a lot more anecdotal record keeping. You could just sit and talk with them and show them the things they need to learn. I know that traditionally Inuit people learned by watching and if the kids can only learn by watching then all they are learning from me is how to stand up and talk. There is so many constraints on what we are doing, even though we have taken a whole bunch of them off, I find it hard to imagine breaking the barriers and doing it so radically different. (99/10/03, 123-130)

In this sense the external pressure of “passing the Western style of the Alberta Departmentals” (00/01/16, 312) was playing a major role in Kublu’s class as she
attempted to be diligent and prepare students for the future. Implications of the departmental exams spread throughout all facets of Kublu’s class. She suggested, “they are not going to pass the departmentals if they don’t know the darn vocabulary” (99/08/23, 510-511) and “you don’t have that discovery learning” (00/01/16, 328-329) when you prepare students for departmental exams. In this sense the exams posed a challenge to Kublu’s attempts to integrate Inuuqatigiit. She did admit that it may be possible to have Inuuqatigiit integration and departmental exams exist together and it is just that she has not discovered how (00/01/16). Kublu felt this was a problem that would have to be resolved if Inuuqatigiit integration were to occur in the context of the school system.

Another major challenge in incorporating Inuuqatigiit into the classroom is the lack of support for the curriculum. Material resources to support the curriculum and administrative support were both missing. Kublu told me there was a general lack of print resources available:

Now maybe its because I haven't seen them, but I know of a couple of books that will talk about the parts of caribou and the meat. There are a few units like the qulliq and the qamatik and stuff for different ways of integrating. There are lots of materials on Northern content but not very many translated into Inuinnaqtun. (00/01/16, 689-692)

The limited number of print resources created a situation for Kublu where she had to actively seek information from the community as a whole. Although Kublu attempted to do this as much as possible, she did note, “There is not a lot of
mixing of cultures outside of our staff” (99/08/23, 116-117). Opportunities to
gain better understanding of Inuit culture are limited.

Administrative support of Kublu’s efforts to incorporate Inuuqatigiit into the
classroom was both limited and short term. She told me the only support she had seen
was an hour long in-service that occurred at the beginning of the year (99/10/03). She
elaborated on this to say,

It’s just not something mentioned. When we were asked to do our year
plans, there was no mention of it to us. No one said to make sure you
incorporate Inuuqatigiit into your year plans, especially for the first year
teachers who haven’t had any support in the document at all. There’s no
way that they’re using it. It just hasn’t been mentioned. (99/10/03, 475-478)

Kublu continued, “I don’t see any administrative push for Inuuqatigiit at all. It is
never brought up” (99/10/03, 482-482). The lack of support and push from the
local, regional and territorial level has created a situation for Kublu where she is
the driving force of efforts to incorporate Inuuqatigiit into the classroom without
the support she feels is necessary to make it succeed.

Kublu noted issues related to the students that posed a challenge to her when
trying to integrate Inuuqatigiit. These issues included: (1) students’ loss of language and
cultural identity, (2) poor student attendance, (3) wide ranging academic levels within the
classroom, and (4) the lack of basic physiological needs. Each of these issues is larger
than the four walls of any given school in Nunavut and each issue has political, social and
moral implications that, for the purpose of this study, were only examined in terms of the
challenge they posed for Inuuqatigiit integration.
Language and Cultural Diversity

The student participants had indicated that they had difficulty speaking and understanding Inuinnaqtun. Kublu indicated that the use of Inuinnaqtun in the class was an essential component of her definition of good Inuuqatigiit integration. Much of the learning in the class was limited to vocabulary that could be tied to the curriculum such as the Inuinnaqtun names for plants (Journal Entry, 99/09/09). The use of language in a more holistic approach was beyond the ability of both Kublu and the students. This made it hard for Kublu to achieve effective Inuuqatigiit integration.

Attendance

Attendance was also an issue in the classroom and made it a challenge to integrate Inuuqatigiit. During the second interview with Kublu she told me, “I have some real attendance problems. I have three complete non-attenders and I have two or three other youths that are in class 40 to 50 percent of the time” (99/10/03, 16-18). Kublu related the story of one young man. “I taught Brian for the last two years and he’s come to school maybe seven days in that whole period. He has only come twice this year. Brian is probably one of the weaker students we have in the school. His reading ability is probably very, very low, grade two or three” (99/10/03, 190-193). With sporadic attendance such as this not only does it make it hard for Kublu to integrate Inuuqatigiit into the student’s program, it is difficult to have a program that the student can follow. While observing her class, there were no days when all of the students were present, although there were a few days where only one or two students were missing. On one of
these occasions Kublu told the class, “Fantastic attendance today, almost everyone here!” (Journal Entry, 99/09/01).

**Basic Physiological Needs**

Kublu also told me that some of the students in her class do not get some of their basic needs met. During the second interview she told me,

> I am totally impressed by the kids who do come to school. There are very few kids in our classes who eat enough, sleep enough, have a quiet place to work or are living in a situation where they’re totally secure. That affects everything. If I went around to every single kid in that class, and I do know enough about all of them, they are all dealing with way more than I ever had to think about when I was growing up. (99/10/03, 435-439)

This lack was a challenge not only for *Inuuqatigiit* integration but also for the overall performance of the students. This issue was particularly prevalent during the early morning classes when the attendance would often be less than 50 % (Journal Entries). When discussing the events around Christmas holidays, Catherine told me that she often stays up until six in the morning then sleeps until four or five o’clock in the afternoon (00/01/11). This causes a phenomenon known as “getting backwards” in the community, a sleeping pattern in which a person stays up all night and sleeps during the day. This obviously causes problems when the school is open during the day when a student who is “backwards” wants to sleep. The result is lethargy and a need for the teacher to encourage students to keep focused though the course of the day. In one instance
I witnessed a student lie down on the cupboards that lined the room, put his hands in his arms, and attempt to fall asleep (Journal Entry 99/08/25). Kublu simply asked the student to sit in his chair and allowed him to sleep for a few minutes with his head on the desk.

Conclusion

This chapter documents many facets to the story of Kublu and her six students. What did I learn from my time with Kublu and the students? A synthesis of my response is found in chapter 5.
Chapter 5

Introduction

If our children are going to be proud and happy about their own self-identify, be able to say, “Look, I am Inuk. I speak my own language and have my own Inuk personality,” then I believe we’re the ones who should be developing something that is presentable and desirable to our children. That is something that I would urge you to strive for whether you are a homemaker, a hunter, a transcriber or whatever. It doesn’t matter who you are. (Inuuqatigiit Committee, p. 37)

Over the duration of this study I have reflected on the role of Inuuqatigiit in the Nunavut Education system. I knew that Inuuqatigiit was more than a mass of knowledge that was to be passed on to students by the teacher. Ingrained within Inuuqatigiit is a philosophy of life that describes Inuit and what it means to be an Inuk. What I did not realize, however, was the importance of this philosophy to the knowledge component of the curriculum and how the two cannot be separated without doing injustice to either. I was assisted with relating my experiences in Nunavut classrooms and making sense of curricula with the help of Kublu and the class acting as my teachers.

This chapter will outline the lessons I have learned and the questions I continue to ask as a result of the research. In the first of these sections I will reflect on, from my personal perspective as a researcher, the advantages and challenges of integrating...
Inuuqatigiit into a Nunavut junior high school classroom. In the second section, I speculate on some of the issues that manifested themselves in the study. This section will address issues that teachers and students may be thinking about during the process of Inuuqatigiit integration. In the third section I will suggest possible avenues for future research. In the final section I will reflect on the research methods used in the study. This section will be written as an “If I could do it all over again” section to provide future researchers with some insight into possible advantageous methodologies as well as avoidable pitfalls.

Advantages and Challenges of Inuuqatigiit Integration

I once had the opportunity to work on a science curriculum with a group of seasoned educators. During our discussion we talked about integrating technology into the course to help enhance student learning. One educator told me at the time that teachers would not use it if they did not see an advantage to the students and if they did not understand it themselves. Progressing though interviews with Kublu and observing her class trying to incorporate Inuuqatigiit, I came to better understand what this teacher meant. Although the context had changed from technology integration to Inuuqatigiit integration the key question of “Why integrate?” remained the same. Why should teachers spend all of their time trying to bring cultural perspective into science classrooms that have conventionally been perceived as devoid of culture (Aikenhead 1996a)? What are the advantages of bringing in this perspective?

In chapter 2 it was argued that Western science is not devoid of culture but has a culture of its own based on Western values and beliefs (Aikenhead 1996a). Indeed this
culture can be found at the heart of the school system itself. To bring in a cultural perspective that incorporates Inuit culture is to pay respect and value the beliefs inherent in that culture. In this manner students are placed in a position that is less disjointed from their life at home and in the community while in school. In effect the school environment, as an extension of the home, starts to make more sense to students as they are able to relate with it. This process enables educators to begin fulfilling their role as culture brokers (Aikenhead 1996a) and help students make cultural border crossings that are not hazardous (Aikenhead 1996a, 1997). This is the single most important advantage of incorporating Inuuqatigiit, or any culture based curricula, into the school system.

Kublu noted the need to start students “where they are at and getting as much of your science content on reality here” (99/08/23, 723-724). This statement has a ring of constructivism. For teachers like myself who are constructivists by nature the incorporation of Inuuqatigiit into their classroom teaching embraces their pedagogical beliefs. Personal experience indicates that this approach promotes student growth and achievement while providing a contextual base from which students may draw. Students no longer have to review previous work because the contextual base they are working from is their everyday life. For the teacher it presents an opportunity to have many teachable moments because students make connections between school and the world around them. Abstraction makes more sense in the context of the known, and science principles can come alive and enhance learning rather than hinder it. Parallel collateral learning (Aikenhead & Jegede, 1999) occurs in a manner that encourages students to succeed in both the world of their home and at school, as information from school science exists beside traditional science concepts.
It was Kublu's conclusion that students' self-esteem was improved when their culture has an integral role in the classroom. This was also a key goal of *Inuuqatigiit*. Increased opportunity to pass on their cultural knowledge to the teacher helps students feel less disjointed from the education system. This sense of belonging can help to increase performance as they become more interested in school. This creates a sense of ownership in the classroom, as students feel less removed from the curricula. This unique perspective of the student can often be one from which teachers can learn. Cultural perspectives brought into the classroom when teachers from one culture teach students from other cultures afford an opportunity to learn and grow. For Kublu this was one of the benefits of *Inuuqatigiit*. It created an exciting environment for her to live and work in.

Integrating *Inuuqatigiit* also puts students in a situation where they are holders of knowledge that pertains to their culture. Students can share this knowledge with both their peers and teachers. During the course of the study Kublu found that the collective knowledge of the class could be used as a starting point for lessons and as vehicle for science concepts that were abstract in other contexts. The inclusion of this knowledge made science concepts more accessible to students and seemed to generate a much greater interest in the junior high science curriculum as a whole. This was surface *Inuuqatigiit* integration, however, and did not address values and beliefs that are an integral part of the curriculum (*Inuuqatigiit* Committee, 1996). It should be noted that this is a promising beginning and something that can be built upon to embody the principles advocated by the writers of *Inuuqatigiit*. 
Although the integration of *Inuuqatigiit* does have inherent benefits, there are also many challenges that must be overcome to ensure that it is properly integrated. In the course of the research study Kublu's attempts to integrate *Inuuqatigiit* were examined and her successes were noted. It can also be argued that she was not succeeding to the full intent of the authors of *Inuuqatigiit*. In previous years, Kublu was able to integrate *Inuuqatigiit* according to her own personal definition of *Inuuqatigiit* integration more so than in the course of this study. Each person will develop a different definition of *Inuuqatigiit* integration. It is improbable that each teacher in Nunavut will achieve this to the same degree.

I once had the opportunity to ask an Inuk who worked at the school to explain *Inuuqatigiit* to me. Her response was, “It is what it is to be an Inuk.” Over the course of the next few years I asked several more people the same question with similar responses. The difficulty for me, as for Kublu, is to understand *Inuuqatigiit* in its true form as we are from another culture. If you need to be an Inuk to truly understand *Inuuqatigiit*, it is unlikely that any teacher from outside Nunavut will be able to effectively integrate *Inuuqatigiit* into their classroom. This points to a need for further clarification of what it means to teach in a manner that integrates *Inuuqatigiit*. Without a clear definition of this process it is unlikely that people from “outside” the Inuit culture will be able to integrate the curriculum as intended. Unfortunately, no clear guidelines can be given to explain what it means to teach using *Inuuqatigiit*. To know what it is to be an Inuk is not something that can be written in a textbook nor told to a person. It is something that must be lived. Personal experience has brought me to the conclusion that it impossible to know what it is like to live in the Arctic without actually spending time there. I believe
this can be extended to say that it is impossible to know what it is like to be part of a
culture that is tied to frozen lands of the Arctic without being a part of the culture. This
points to a need to help educators make cultural border crossings themselves to better
understand their role in *Inuuqatigiit* integration in the classroom. Individual
interpretations of *Inuuqatigiit* guide teachers in their approach to *Inuuqatigiit* integration.
Those who feel that culture is not important in a science classroom ignore it, and those
who feel it is important try to incorporate Inuit culture according to their understanding.

The ramifications of this are far reaching and impact all aspects of the classroom.
In the case of Kublu, her pedagogical approach was affected by her understanding of
*Inuuqatigiit*. In some cases, such as science camps on the land, it can be argued she was
using a pedagogical approach that embraced Inuit culture. But in other cases, such as
teaching vocabulary for departmental exams, her approaches may not have embraced
Inuit culture. I interpreted this as her attempt to conduct her classroom using the
principles of isumaqsayuq (Stairs, 1995), but her university training often focused her on
ilsayuq (Stairs, 1995). A better understanding of *Inuuqatigiit*, and therefore Inuit culture,
would have aided Kublu in her attempts. It is reasonable to assume that her open attitude
and willingness to have Inuit culture in her classroom would enable her to continue to
improve as she spends more time in the Arctic and becomes more familiar with Inuit
culture.

External factors can also provide challenges to incorporating *Inuuqatigiit* in the
classroom. In Kublu’s case departmental exams were a large factor. These exams drove
her teaching and assessment practices in a manner that worked to the detriment of her
goal of *Inuuqatigiit* integration. It could be argued that this should not happen in a junior
high school classroom, as the departmental exams are not to be written until the end of grade 12. This may be the case; but it should also be pointed out that Kublu felt that this much “practice” for the exam would work in the favor of the students. The decision about which side of the argument is “correct” is left to the reader. The influence of the departmental exams, even in junior high school, supports the supposition of Goodlad (1988) that “schools are goal oriented factories engaged in processing human materials” (p. 338).

Support for Inuuqatigiit from school and regional administration was also lacking in Kublu’s case. It can be argued that support in the form of instructional strategies, policy, accountability mechanisms and mentoring would have made Kublu’s task of incorporating Inuuqatigiit easier. Administrative support within the school to make sure that Inuuqatigiit integration occurred would have encouraged a climate within the teaching staff conducive to overcoming hurdles such as rotary classes and shortened instructional periods, to name a few. Additional support would have also provided Kublu with another source to draw upon for a better understanding of Inuuqatigiit, such as more involvement of the Inuuqatigiit consultants at the community, regional and ministerial level. This support could have eased her own border crossings into the domain of Inuuqatigiit.

Although these challenges did make it more difficult to incorporate Inuuqatigiit, none of them alone was sufficient to stop the integration of Inuuqatigiit from occurring in Kublu’s class. Kublu fought through several personal issues to make sure that Inuit culture was a part of her classroom on some level. By her own admission this was not accomplished as well as she had hoped (00/01/16), but it did indeed occur. The fact that
she fought through these challenges to make sure that *Inuqatigiit* played a role in the
class demonstrates her feelings that the advantages far outweigh the challenges.

**Inferences Beyond the Data**

I have heard it said that when you do research the data should, and will, speak to you. I did not understand this statement until I finished transcribing the first interview with Kublu at the end of August in 1999. It was at this point that themes in the data began to emerge and I had a sense of the larger picture. Upon completing the data analysis from the interviews, the talking circles and the classroom observations, I realized that the picture I saw in August 1999 was only a small piece of the whole tapestry, and I am still unable to see it in its entirety. In this section I will try to look past the data that have been collected and speculate on some of the advantages and challenges of incorporating *Inuqatigiit*. These speculations will be based on more than just my experience in Kublu's classroom but also on my experience in my own classroom and those of other colleagues whom I have worked with over the past seven years.

I believe that all teachers see an advantage to incorporating *Inuqatigiit*. However, I do think that the degree to which teachers see this as being important varies. During my time in Nunavut classrooms I did not come across a single teacher who did not try to provide students with concrete examples that tied "the curriculum" with students’ prior knowledge. I would argue these teachers were attempting to create cultural border crossings and integrating *Inuqatigiit* on a surface level. At this level the students were making sense of the world around them through familiar examples. These examples were then used as a medium through which more abstract science concepts
could be interpreted. Kublu’s example of the kumak (warble fly) to represent the life cycle of a parasite was one such example (Journal Entry, 99/09/02). The difficulty with only using examples is that they address only the physical aspects of culture and not the emotional and spiritual aspects that are part of Inuit culture. For example, many teachers talk about tuktu (caribou) to students. Many teachers tell how the tuktu eat nuna (grass) and thus are part of the food chain, and in turn, are part of the food web. This serves the purpose of making an example more “real” for students, as they can understand the context much better than they could from one that is unfamiliar to them. But often the other aspects that are key to Inuit culture are missed. Inuuqatigiit notes the following in regards to the rationale of teaching about caribou:

The caribou has always been important to the Inuit. It provided food shelter, clothing, tools, implements, and games. Clothing made from caribou skins is the warmest for northern winters. Many hunting stories were told at camps about caribou. Hunting caribou is still very important to the Inuit. This topic should focus on the importance of hunting caribou in your community or region. (Inuuqatigiit Committee, p. 113)

Teachers are expected to focus on the values, beliefs, major understandings and attitudes that are based on the caribou. This goes beyond the scope of using caribou in place of another animal listed in another resource. This information implies a holism that exists around caribou and their relationship with Inuit beyond food chains and food webs. This is the information that can be brought into the classroom to help students see linkages between their science class and their home lives. This holism builds bridges between science and Inuit culture that helps students see a coexistence of the two beliefs (secured
collateral learning, Jegede, 1995). When this coexistence happens in a manner that does not diminish the beliefs that a student brings into the classroom the student is more likely to manage cultural border crossings and succeed in science. There are challenges that can make this coexistence difficult.

In my experience the single greatest challenge to Inuuqatigiit integration lies in understanding the document itself. Nunavut is a unique political entity in that it is composed of primarily Aboriginal people, Inuit, who legislate their own laws through a consensus government. At the same time, the majority of educators in junior and senior high school certified with a Bachelors of Education degree are not Inuit. This creates a situation where the government has mandated a curriculum embodying aspects of Inuit culture and beliefs to be taught primarily by educators for whom the curriculum content (Inuit culture) is foreign. In some cases the teacher may be an Inuk but not have a firm grasp of his or her culture due to the impact of residential schools and other factors attributed to the settlement of the north by people from other cultures. Teachers are put in a position where they must either make interpretations about Inuit culture from the document or other sources. In some cases the information teachers receive is not indicative of Inuit culture as a whole and may not represent the attitudes and beliefs of the community. Incorrect information implemented in the classrooms, therefore, becomes an issue as it is not indicative of the Inuit worldview. To make matters worse, the Alberta departmental exams do not take Inuit culture into account but assess in a manner inconsistent with Inuit ways of learning and knowing.

These circumstances often result in teachers making border crossings on their own, if they are to understand the context in which they are teaching. For many it is far
easier to work at the surface level (using examples that pertain to Nunavut) rather than delve further into a culture of which they are not a part. It is reasonable to assume that efforts to integrate Inuuqatigiit will not improve until people’s understanding of it improves as well. It may be possible to overcome the lack of knowledge of Inuit culture through a team teaching approach such as the one that Kublu and the Language Specialist used in Iliharvik. This will be discussed further in the next section of this chapter.

**Future Directions of Research**

One of the key issues that arose in the study was the level of understanding and insight that Nunavut educators certified with a Bachelors of Education have about Inuuqatigiit itself. After completing this research I believe there is a different definition of Inuuqatigiit for every teacher in Nunavut, as he or she tries to make sense of the curriculum in his or her own mind. These many interpretations are being implemented in the classroom to varying degrees. In light of this I feel it would be beneficial for a research project to be conducted to develop a consensus on what Inuuqatigiit integration looks like in a “science classroom.” This research would create a picture of Inuuqatigiit integration through a series of vignettes and concrete illustrations. This would employ a variety of sources including teachers, principals, regional school services staff, and community members. This research could then be used to guide teachers new to the territory or new to the profession on how to incorporate Inuuqatigiit in their classroom.

My suggestion would call for an educator who is not comfortable with Inuuqatigiit to be paired with a mentor. The mentor could be anyone in the community, such as an Elder, who is respected in the community and can represent the Inuit...
worldview. The educator would conduct action research to determine the best possible methods of honoring both knowledge systems. Through this process a dialogue could be achieved that would help both educators understand the two worldviews. The findings from this research could then be used to create a resource that would help Nunavut teachers implement Inuuqatigiit in their classrooms.

A second area to be explored revolves around the concept of integration. As I began to analyze the data from this study I began to question the direction of integration. Should Western curricula be integrated into Inuuqatigiit? Or should Inuuqatigiit be integrated into Western curricula? The former would involve a radical shift in how curriculum is viewed by many teachers. Science concepts would be studied as they arose and not in a “logical” fashion as most Western models propose.

A third area that could be examined is the success rates of students who are taught using Inuuqatigiit within their education system. This study would have to be longitudinal. Researchers would be required to identify not only the two groups of students, but the indicators of success that would be used to compare the two groups. Indicators would need to address cultural measures of success, and therefore would not necessarily be measured in terms of grades or graduation rates. It may be possible that the process of identifying the indicators of success in the two contexts would be a research project in itself.

A fourth area to examine would be students’ perceptions of Inuuqatigiit. The key question in this study would be, “Do students prefer the inclusion of Inuuqatigiit in school when compared to a traditional Western style classroom?” This question was addressed to a minor extent in this study but not fully explored. Further exploration
would require the researcher to determine the students’ preference of *Inuuqatigiit* integration within their class as opposed to a class that promoted Western science values and beliefs explicitly.

A fifth area would centre on the effects of the community language usage and *Inuuqatigiit* integration. Researchers would be charged with examining the differences between communities where English has not supplanted the local language, Inuktitut or Inuinnaqtun, and those where English has become the dominant language.

A final future research consideration would be the role that age of the student plays in *Inuuqatigiit* integration. Researchers would be charged with determining if *Inuuqatigiit* lends itself more to one age than others?
Postscript: Reflection on Research Methods

Traditional scientific method has always been at the very best 20-20 hindsight. It’s good for seeing where you’ve been. It’s good for testing the truth of what you think you know, but it can’t tell you where you ought to go.

Robert M. Pirsig

The completion of this study marks a milestone in my efforts as a researcher. I have accomplished the task I started. In doing so, I have come to realize that my initial version of the “scientific method” was not the one that I used throughout the study. As time progresses I am left with the feeling that there is no scientific method to qualitative research but rather some guiding principles that are adapted to fit the circumstances. Indeed I feel that the study would not have produced the results it did had I not been able to adapt and change my approach to data gathering. Unforeseen circumstances, such as Kublu’s illness and students’ response to the talking circle, played pivotal roles in my decision to adapt my methodology. In attempting to identify some of the pitfalls of my research I hope to provide future researchers with some hindsight. Although these suggestions will provide a basis from which to start, they “can’t tell you where you ought to go.” Researchers will need to find their own path.

Tufts (1998) found that a talking circle approach to data collection with students enabled him to obtain information from the students in a manner that was not invasive but culturally appropriate. His research was conducted with individuals who had completed high school and were more mature than the junior high school students in my research study. The use of a talking circle in my experience was not fruitful because students were
unable to sustain a conversation on a particular topic. The result of this was a need to adapt my data collection with students to a semi-structured interview approach. Elements of the talking circle protocol were maintained, however, as students still spoke in turn going around a circular seating arrangement and were respectful of each other’s opinion.

In hindsight I believe the students’ inability or unwillingness to sustain a conversation may be due to their age (a stage in life). As a result I would caution future researchers to be wary of student age and maturity when selecting a data collection method because it can impact the quality of responses. If the opportunity arose for me to gather data again from these students, I would commence the study with a semi-structured interview to determine the method that students felt most comfortable with. In my research study the students favored semi-structured interviews but this may not be the case if another age group of students were chosen. Student comfort level seemed to play a large part in their willingness to provide information. My advice is to garner student participation in determining the research method.

Additional participants may also have had an impact on the results of the study. Kublu often talked about individuals who were involved in the class either directly or in supportive roles. Information from these sources could have helped to provide a broader understanding of the research question. For example: Was the lack of support from the school and district level caused by a belief that the integration of Inuuqatigiit was not advantageous to the education system as a whole? If so, this would help to explain why there was a perceived lack of support and the reasons why support was not provided from these sources. Additional information from these sources would act to support or refute some of Kublu’s assertions as well as to provide me with a larger picture.
Data collected from students’ other teachers may also have provided additional information. In some cases this may have acted as a contrast between Kublu’s methods of *Inuuqatigiit* integration and that of other teachers. Indeed it may be that other teachers felt that Kublu was not integrating Inuit culture into her curricula, or that they were more effective at integration than Kublu. The opposite could have also been the case.

**Concluding Thought**

When I first arrived in the north, I was confronted with the task of working in a culture that was foreign to me. As events unfolded I came to better understand some of the intricacies of Inuit culture. Although I can never be a full participant in Inuit culture, the completion of this study has allowed me to reflect on my own interpretation of the role of culture in the science classroom through the lessons taught to me by Kublu and the students. I still do not feel that I have an understanding of all the issues nor do I have answers to the questions but I do feel that I am one step closer.
References


Appendix A

Covering Letter to Teacher Participant

I am presently a graduate student at the University of Saskatchewan working toward a Master of Education degree. I am interested in the role that Inuuqatigiit plays in your science classroom. Through personal contact and discussions with your colleagues, I understand that the role of Inuit culture is a predominant one in your classroom. Through my research in your science class, I hope to better understand both the advantages and challenges that you and your students are experiencing in integrating Inuuqatigiit into your science lessons.

In order for me to gain these insights, I need to gather data through three separate means: (1) observation of science classes in progress, (2) interviews with you, and (3) talking circles and/or interviews with four students in your class.

The observations will take place the first month of the school year. I hope to begin these observations during your first science class with the students. I believe that this first class will help me to understand the setting in which your class operates more fully than if I were to enter the classroom in the middle of the school year.

I would like to conduct a one or two hour interview with you prior to the first class to gain an understanding of your goals and intentions for the class. I would also like to have a talking circle with the student volunteers early in the first week of classes to gain an understanding of their perceptions of science education. Interviews and/or talking circles with both you and the students will be held during and at the end of the study to help clarify issues that manifest themselves during the investigation.

Logistically it would be impossible for me to gather data from all of the students in the class. As a result, I would like you to help me select (via a lottery type of system) four students and two alternates who would be help the study. These students will be invited to participate in the research procedures.

Information collected during the study will require your signature that it is both accurate and anonymous before it will be used. Any published work will be based on this information. The study is voluntary for both you and the students. If for any reason you do not wish to continue, you may withdraw yourself and all your data from the study.

Sincerely,

Richard V. DeMerchant
Ethics Contracts: Teacher Participant

A CASE STUDY OF INTEGRATING INUUQATIGIIT INTO A NUNAVUT JUNIOR HIGH SCHOOL CLASSROOM

I am presently a graduate student at the University of Saskatchewan working toward a Master of Education degree. I am interested in the ways that Inuit culture is integrated into a science class. In particular, I am interested in the things that make it easy for you and the things that make it difficult for you when Inuit culture is incorporated into the classroom. I have planned a research study to learn about these things.

I am inviting you to participate in my research study in two ways. In the first way, I would like to interview you. I would like to follow up this interview with three or four subsequent interviews. I will provide refreshments during the interview as a small token of my appreciation. Each interview will last between one hour and two hours and will be audio taped.

The second way is to allow me to come into your classroom to observe your science class. To do this I will need to make notes in class and watch you teach. This will in no way be an evaluation of you or your students.

The study will last about one month.

The results of my research study will be published in a thesis and kept at the University of Saskatchewan library. There is a possibility that some of the results could also be published in a magazine for teachers. Any information you provide will not be published until you have had the chance to read it and say that it is truly your view.

The study is voluntary and you may withdraw from the study at anytime. If you withdraw from the study all of the information I have collected will be returned to you and will not be used in the study.

Thanks you for thinking about helping out by volunteering to participate. The following guidelines listed below are designed to safeguard the interests of each participant. Please read them carefully and sign below only if you agree with them.

GUIDELINES:

1. Participants are ensured that the confidentiality of all data collected will be maintained within the limits of the law.

2. All data including audio-tapes and signed transcripts will be safeguarded and securely stored at the University of Saskatchewan for a period of five years in accordance with university regulations.

3. The participants' names and the name of the school will not be identified. Pseudonyms will be used to ensure the maximum degree of anonymity possible.

4. Participation in this study is voluntary and participants have the right to withdraw from the study at anytime. If a participant withdraws, all his or her data will be removed from the study.

5. None of the statements made by the participants in the study will be published without the written permission of the participants.
6. Any questions regarding this research can be directed to Richard V. DeMerchant (867) 982-4406 or Dr. Glen Aikenhead at (306) 966-7563.

I __________________________ understand the project and guidelines outlined (please print) above and I agree to participate in the study.

Date: ________________ Signed: __________________________

Researcher’s signature: __________________________

Witness’ signature: __________________________
Appendix B

Covering Letter to Student Participants

I am a graduate student at the University of Saskatchewan working toward a Master of Education degree. I am interested in the ways that Inuit culture is brought into your science class. I am interested in the things that make it easy for you and the things that make it difficult for you when Inuit culture is incorporated into the classroom.

I am inviting you to participate in my research study, in two different ways. In the first part of my research, I would like to come into your classroom to observe your science class. To do this I will need to make notes in class and watch you and your teacher. Neither you nor your teacher is being evaluated on how you are doing in the class.

In the second part of my research, I would like to talk with you and three other classmates about your science class. I would like to talk with you on three occasions. Each time will be no longer than 45 minutes and will be audio taped. I will supply you with refreshments during these conversations.

The study will last about one month in total.

Your real name will not be used in the study. You may pick a name to be used instead of your real name in any of the material that is written about you.

The results of my research study will be published in a thesis and kept at the University of Saskatchewan library. There is a possibility that some of the results could also be published in a magazine for teachers. Anything you say will not be published until one of your teachers has read it and is sure that you cannot be identified and that your best interests are served.

The study is voluntary. This means you may withdraw from the study at anytime. If you withdraw from the study, all of the information I have collected will be returned to you and will not be used in the study.

Your views will help make science classes better for students in the future if their teachers read about this research study.

Thanks you for thinking about helping out by volunteering to participate.

Sincerely,

Richard V. DeMerchant
I am a graduate student at the University of Saskatchewan working toward a Master of Education degree. I am interested in the ways that Inuit culture is brought into your science class. I am interested in the things that make it easy for you and the things that make it difficult for you when Inuit culture is incorporated into the classroom.

I am inviting you to participate in my research study, in two different ways. In the first part of my research, I would like to come into your classroom to observe your science class. To do this I will need to make notes in class and watch you and your teacher. Neither you nor your teacher is being evaluated on how you are doing in the class.

In the second part of my research, I would like to talk with you and three other classmates about your science class. I would like to talk with you on three occasions. Each time will be no longer than 45 minutes and will be audio taped. I will supply you with refreshments during these conversations.

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The results of my research study will be published in a thesis and kept at the University of Saskatchewan library. There is a possibility that some of the results could also be published in a magazine for teachers. Anything you say will not be published until one of your teachers has read it and is sure that you cannot be identified and that your best interests are served.

The study is voluntary. This means you may withdraw from the study at anytime. If you withdraw from the study, all of the information I have collected will be returned to you and will not be used in the study.

Your views will help make science classes better for students in the future if their teachers read about this research study.

Thanks you for thinking about helping out by volunteering to participate.

The following guidelines listed below are designed to safeguard the interests of each student. Please read them carefully and sign below only if you agree with them.

GUIDELINES:

2. Any information collected from you will be kept confidential within the limits of the law.
3. All information including audio-tapes and transcripts will be stored at the University of Saskatchewan for five years according to the rules of the university.
4. The real name of the school, teacher and students will not be used in the study. Fake names, pseudonyms, will be used instead to make sure that no one can identify the school or people involved in the study.
5. The study is voluntary. This means you may withdraw from the study at anytime. If you withdraw from the study, all of the information I have collected will be returned to you and will not be used in the study.

6. Anything you say will not be published until one of your teachers has read it and is sure that you cannot be identified and that your best interests are served.

7. If you have any questions about this study you can ask Richard V. DeMerchant (867) 982-4406 or Dr. Glen Aikenhead at (306) 966-7563.

I __________________________ understand what the research is about. I

(please print)

understand the guidelines above, and I agree to participate in the study.

Date: ___________  Student’s Signature: ____________________________

Researcher’s signature: ______________________________

I consent to having __________________________ (student’s name) participate in this study.

Legal Guardian’s Signature: ______________________________

Witness’ signature: ______________________________
Appendix C

Semi-structured Interview Questions for Initial Teacher Interview

Background information:
1. Tell me about your life before you came to the Arctic.
2. What brought you to the Arctic?
3. How long have you been living in the community?
4. Tell me about the things you have been doing in the community.

Culture questions:
1. When I say the word ‘culture,’ what do you think of?
2. Do you see your personal culture differing from Inuit culture? How?
3. Where would you place Inuit culture in the context of "Canadian culture?"
4. How would you define Inuuqatigiit?

School questions:
1. Tell me about your role in the school.
2. Tell me what I may expect to observe on my first day in your science class
3. How do you think what I observe will change over the course of the study?
4. What are the goals of your science class this year?
5. What are your goals in science class until the end of September?
6. Where does Inuuqatigiit fit into your goals?
7. How do you plan on integrating Inuit culture into your class?

General Question:
1. What do you expect to get out of your participation in this study?
Appendix D

Talking Circle Protocol

The talking circle will allow the students a medium for students to communicate their attitudes and perceptions of Western science versus Inuit science.

The talking circle will be conducted with the following rules adhered to:

1. One person speaks at a time.
2. No one is forced to speak.
3. No time limit is placed on what the speaker has to say.
4. Everyone in the circle listens respectfully to the words of the speaker.
5. The person on the speaker's left is the next one to speak.
6. No one is permitted to criticize or speak negatively of what is shared in the circle.

Each talking circle will begin with me stating a theme for the group to discuss. It is assumed that with students of this age it is unlikely that the entire 45 minutes will be utilized with one theme. Each session will include a main theme as well as secondary themes that may be introduced if time permits. It is possible that the secondary themes will be answered as the students address the main theme of the talking circle. If they are not they will be introduced at the appropriate time as per the rules of the talking circle protocol. The manner for introducing them will be such that the rules of the talking circle protocol are obeyed. I will introduce a new theme when all conversation over a previous theme has ended and it is my turn to speak.

The themes that will be used in the first talking circle session are:
Main theme - What do you like and what do you dislike about science?
Secondary themes - What makes science interesting?
When have you related Inuit culture to school science in your class?