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Culturally Based Education:
Student Technology Projects in a First Nations Community

by

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Abstract

This inquiry explores community members' perceptions of student produced multimedia technology projects. Projects are community-based, rooted in First Nations culture of a remote northern British Columbian village. Open-ended interviews focus on what community members consider important to the education of their children. Community presentations and meetings underscore the emphasis on participatory and decolonizing methods used in this case study. Theories of cultural compatibility, cognition, and cultural historical activity underlie culturally based education (CBE) programs exemplified by these projects. A totem pole metaphor guides readers through the inquiry. Participants expressed strong support for CBE programming, specifically those that use technology in innovative ways to support culturally relevant community-based educational initiatives as well as to create resource materials. Similar research suggests that these kinds of projects may lead to increased levels of student achievement and success in other areas and may act to bridge the gap between local and global educational requirements.

Acknowledgements

I would like to acknowledge all the communities of people and learning that I am

honoured to be a part of and who have encouraged and guided me in the process of this

work.

Thank you.

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relevant to and in our schools and communities. To do this, students need to be a part of the process. This study outlines a way in which that has been done.

Statement of the research question.

A list of guiding questions that were used in participant interviews is located in Appendix A. They were developed from the central research question that forms the basis of the study:

What do community members in this First Nations village see as the benefits and drawbacks of having students engage in culturally based technology projects as part of their school curriculum?

The set of sub-questions addressed in the context of research are:

1. What are parents, Elders and other community members' perceptions of the meaning and value of student work?

2. What relevance to this First Nations' culture and contemporary life are these types of learning experiences providing?

3. In what ways are we as teachers teaching and helping students learn about things that community members think are important?

4. In what ways are student technology projects reflecting both culturally responsive education and responsible educators?

Limitations of the study.

A study of this nature relies heavily on the interviewing skills of the researcher. As a relatively inexperienced interviewer, this may have hindered my ability to achieve the depth of response I would like. On the other hand, my personal connections and

relationships with the people being interviewed may have helped me overcome this difficulty. A comprehensive list of questions (see Appendix A) and topics to discuss facilitated my lack of experience as an interviewer. Participants were interviewed initially to find out their views on education generally, with attention to ideas of importance and relevance to community life. Following the presentation of student technology projects, participants were interviewed in a more specific way that attended to ways in which the student technology projects might meet or not meet the educational needs of the community that they had identified previously. The intent of this design was to ensure that participants had some experience and understanding of what culturally based student technology projects might involve and look like, not necessarily to seek change.

I anticipate the findings from this research to have applications to other groups and areas, largely due to the nature of the process with its inherent flexibility. While careful not to make broad generalizations based on a single case study from one particular First Nation, I believe that themes emerged which will be useful in exploring similar issues for other First Nations peoples in Canada and other countries, particularly in the area of Culturally Based Education.

Importance of the study.

As an educator and a researcher, both formally and informally for over twenty years, I have had the opportunity to see a wide variety of educational practices. I have worked for and with organizations such as Katimavik, Outward Bound, Strathcona Park Outdoor Education Centre, the United Church, and the World Community Development Education Society as well as three different school districts (on call, temporary, and permanent teaching positions). I have lived, studied, and worked mainly in the northwest of

Canada in a variety of communities (large, small, First Nations, mixed cultures). Travel in

the western United States, Mexico, Europe, and southern Africa has enabled me to

appreciate and gain a wider perspective of other cultures, as has my eighteen-year

partnership with a South African. Practices such as those described in this study that are

community based, culturally responsive, engage students in critical thinking where they are

making decisions about the information they have gathered to produce a multimedia

project, use a variety of technologies, and absorb students in their contemporary culture

excite me. They really work to engage, motivate, and involve students in their own

learning. I know that students enjoy these kinds of projects and I have observed the effort

going into the work that they were doing on them. I wanted to find out whether the

community thought the way that the students and I did and what concerns they might have

about the work we were doing. If the culturally based technology projects work to benefit

students, teachers, parents, and community members, they may have relevance for other

teachers, educators, communities, organizations, and policy makers.

By taking an in-depth look at this work and other studies in the field, new insights

can be brought to challenges and problems facing educators and policy makers today.

Findings from this study may contributes to bodies of knowledge in several areas including

culturally based education and theories of cultural compatibility, cognition, and cultural

historical activity; digital technology integration; teacher training; post colonial methods

and theory; and First Nations education.

The culture, community, students, their technology projects, and the inquiry form

the basic figures, crests, or ayukws on the metaphorical totem pole. Adaawak or stories

provide some of the background, history, and related studies that have been done in the

area of culturally based education. Issues of self-determination, colonialism, historical portrayal, racism, language, cultural appropriation, and cultural validity abound in the data collected for this study. These concerns are very real and important to acknowledge, as is the recognition that they are beyond the scope of this thesis. In the literature review, particular attention is paid to studies that have been done relating to First Nations' student achievement and success, involving communities in the education of their members, various ways that technology is being used in First Nations schools and communities, and culturally based education. The next section further clarifies and defines Culturally Based Education and the theories that support it.

Simgan: Cedar
(theoretical foundation)

The tree used to carve a totem pole is simgan--cedar, the tree of life. It is the foundation upon which carvers carve the ayukws that represent the adaawak for others to interpret. The theories provide the foundation for a totem to be figuratively carved by the researcher, as she interprets and represents the figures relevant to her inquiry--community, students, students' technology projects, and their culture--for others to interpret.

Theoretical literature including First Nations historiography, post colonial theory, community based research, Indigenous literacies and assessment are all relevant to the influences that student technology projects with a cultural focus have in and on the community. For the purpose of this study, however, I focus on culturally based education and the theoretical framework intrinsic to it.

Culturally Based Education (CBE) is defined as having six critical elements:

1. Recognition and use of Native [North] American ... languages.

2. Pedagogy that stresses traditional cultural characteristics, and adult-child interactions.

3. Pedagogy in which teaching strategies are congruent with the traditional culture and ways of knowing and learning.

4. Curriculum that is based on traditional culture and that recognizes the importance of Native spirituality.

5. Strong Native community participation (including parents, elders, other community resources) in educating children and in the planning and operation of school activities.

6. Knowledge and use of the social and political mores of the community.

(Demmert & Towner, 2003, pp.8-9)

There are three major theories associated with CBE including Cultural Compatibility Theory, Cognitive Theory and Cultural-Historical-Activity Theory (CHAT). All three emphasize the notion that education is more likely to result in academic success or achievement when it builds on experience, values, and knowledge of students and their families in their own lives and communities.

Cultural Compatibility Theory is a descriptive framework that is often used to support studies of CBE. Tabachnick and Block (1995) write that the assumptions of this theoretical framework include: children learn and are competent in the cultural and linguistic context of their home communities; they survive and succeed with their own values, beliefs, and learning patterns taught to them in their home community settings; children are not at-risk from their own cultural linguistic communities, but may be so when they go into other contexts with different, often disparate cultural patterns and values than those they have learned; and their competencies may be seen as something that does not fit the cultural context rather than as strengths (p. 188). Demmert and Towner (2003) explain the basic proposition of cultural compatibility theory: "Education is more efficacious when there is an increase in congruence between social cultural dispositions of students and social cultural expectations of the school" (p.7). Relating to this study, one could say that by having the school elicit and include input and participation from the students and community members, the congruency between the school and student cultural dispositions is increased. Involving everyone in real decisions about what the projects might entail reinforces the notion that the local community and culture are important in the education of

the students. Community members are influenced by the relationship between school culture and community culture. It affects how they perceive the schooling their children are receiving as well as the relationships they have with both the school and their own children.

Cognitive Theory goes further along the continuum of cultural congruence. It is based on the idea that learning involves associating new information with prior knowledge and that once relevant prior knowledge is activated, the new information is processed. Certain kinds of processing in turn improve learning and recall, with greater numbers of associations between new and known resulting in greater retention. Meaningful or relevant material is easier to process than unfamiliar and seemingly unrelated ones (Demmert & Towner, 2003, p.8). These ideas also relate to this study. Local community and cultural knowledge and practices will be much more familiar and easy for students to make connections with and process.

Cognitive Theory accommodates traditional First Nations community culture. CHAT goes further to incorporate it. Cultural Historical Activity Theory combines Cultural Historical Psychology and Activity Theory in a developmental theory that suggests that learning or education leads or guides developmental processes. Development is taken to be the result of social learning by way of internalizing culture and social relationships and Russian psychologist, Lev Vygotsky is credited with discovering the links connecting sociocultural processes in society to mental processes in individuals (Gindis, 1999; Stetsenko, 1999).

Three major concepts that make up the CHAT framework include social interaction, cultural tools, and the zone of proximal development. They are interrelated and function together to bring about the internalization of external cultural activities into internal

processes by the use of various means of communication (psychological tools) and the

mediated learning from adults or more experienced peers (Gindis, 1999). These connect

closely to the six elements of CBE outlined. First Nations' languages and traditional culture

are tools for social interactions between adults and children, parents, elders and other

community members that are essential to the process whereby assisted learning can take

place and expand developmental maturity.

Social interaction is viewed as the main means or vehicle leading to all the higher

developmental functions and their relationships. Initially, cognitive functions are

introduced as interactions between a child and an adult, for example. These interactions are

gradually internalized and in this way develop into characteristics of the child's mind.

Interactions can be personal (involving cognition, emotion, behavior, values, and beliefs),

interpersonal (communication, role performances, dialogue, cooperation, conflict,

assistance, and assessment), and communal (shared history, languages, rules, values,

beliefs, and identities) (Tharp, 1997). All three are interconnected and impact human

development.

Cultural or psychological tools (these include specific types of activities and

cultural practices) act as mediating components of psychological processes. They are key

elements in the structure of complex psychological processes. "Their acquisition by a child

is an integral part of developmental processes, the pathway that defines the very essence of

human development and constitutes its content" (Stetsenko, 1999, p. 247).

The third concept of a zone of proximal development encompasses the notion that a

child is able to problem solve at a more advanced or complex level with the help of or in

collaboration with an adult or more experienced peer. This process of scaffolding brings

about budding developing abilities and may reveal a person's hidden potential (Gindis, 1999; Stetsenko, 1999).

Together, these theoretical concepts comprise a framework that provides a powerful tool for looking at culturally based education initiatives such as the student technology projects, particularly in light of the premise that education and learning lead development. Vygotsky's theory focuses "on the dynamic interdependence of social and individual processes, and its strong emphasis on development, co-construction, synthesis, knowledge transformation, and semiotic mediation" (John-Steiner, 1999, p.202). "The CHAT approach emphasizes that the learner's interaction with materials and activity occurs primarily in a *social context* of relationships" (Rivera, Galarza, Entz, & Tharp, 2002, p. 183).

Our lives are social and involve many different relationships. Postcolonial theory compliments Cultural Historical Activity theory and underlies the rationale for choosing the participatory and decolonizing methodologies and methods outlined in wilsitaatkws gihlee'e--the carving process or methods chapter. Chamberlain (Battiste, 2000) argues that postcolonial theory encompasses the idea that all of the activities we take part in give meaning and value to our lives. The decisions and actions we make regarding the care and well being of our people help form an understanding of ourselves. Survival and power are critical elements. Postcolonial theory provides significant ways of looking at the lands, livelihoods, and the languages of Aboriginal peoples. It allows for contradictions and rejects simplistic choices or solutions. Solid work on developing principles and guidelines enables indigenous peoples to exert more control over who is responsible for indigenous research, how it is carried out, and ultimately, who benefits from it (Batten, 2003; Battiste,

2002;, 2000; Gandhi, 1998; Smith, 1999). The topic of the student projects came from the

community and this study focuses on what community members have to say about the

technology projects that students have created by looking at specific aspects of their history

as colonized people. Students have made decisions about how they retell the stories they

discover (or rediscover) and the community has had an opportunity to see another

perspective of their collective story, told in another medium, and to respond to it.

CHAT takes into account cultural activities and knowledge that are created through

historical time spans and processes. Traditional culture in this community contains more

meaningful information than unrelated elements for processing and CHAT also emphasizes

community-level connections. The student technology projects are an example of culturally

based education that uses CHAT as a foundation or base. Specific reference will be made

to elements of the projects that reflect CBE programming. Additionally, participatory and

decolonizing methods and strategies are used in working with both students and

community members. The conversations with community member study participants will

be discussed in relation to Cultural Historical Activity Theory at the lil'gidim.

First, let us listen to the adaawak as preparations begin. They help orient us to the

purpose of the pole and the nature of this inquiry.

Adaawak: Stories
(literature review)

Traditionally, stories were the primary medium used to convey aboriginal knowledge. Stories inform and entertain; they hold up models of behaviour; and they sound warnings. Recounted in ceremonial settings and confirmed through many repetitions, they record the history of a people. They teach without being intrusive, because the listener can ignore the oblique instruction or apply it to the degree he or she is ready to accept, without offence. Stories of personal experience can be understood either as reminiscences or as metaphors to guide moral choice and self-examination. (Castellano, 2000, p. 31)

It is for the listener, or in this case, the readers, to decide how to hear, read, and understand the following adaawak. I bring my own knowledge, experience and culture to the telling or writing, as is the nature of all storytelling. These stories are represented by this thesis and are told and interpreted by one person, myself.

Every ayukws comes from an adaawak (Boston, Morven, & Grandison, 1996). In this First Nations' culture, the adaawak is often about a meeting with a supernatural being and it usually gives the wilp or house the rights to land and other properties. It describes victories and defeats of ancestors as well as the location of fishing, hunting and forest resources. All of this is remembered with the ayukws itself. Adaawak help us to understand where we come from and some of what has brought us to where we are. While this study does not delve into the traditional tribal stories of specific houses, it does examine historical and theoretical perspectives of the figures or ayukws put forth. Those that have been identified on the symbolic or metaphorical totem pole include community,

students, student technology projects, culture, and the inquiry itself. Given the underlying theoretical premise that students learn better when the culture of the school is congruent with the culture of the home and community and that the focus of this study is on community perceptions of student technology projects, the literature reviewed to tell these stories comes from work done in the areas of First Nations education, culture, and technology use. They will be what I shall call supernatural and what they add to our understanding will be for the reader to determine. Watch or should I say, listen, for the interplay of the figures in the telling of the stories they come from.

Education

The first story I will tell you involves many encounters by First Nations community members, students and their culture with what I will call, supernatural education. By this, I mean a separate, other than natural entity that might better be referred to as schooling. There is not anything super about the disconnection in communities and cultures resulting from many of these encounters.

A great deal of criticism has been leveled at dominant English and Western European cultural education and it is evident that for many First Nations peoples, it does not work (Deyhle & Swisher, 1997; Sawyer & Rodriguez, 1992). FSA or Foundation Skills Assessment tests done in the School District that this study encompasses, indicate it is in the lower reaches of the achievement list (*Foundation skills assessment results,* 2001). Basic Reading Inventory testing done in my grade 6/7/8 classroom in 2003 show that many of these students are two years below grade level. Reader's Workshop, a program within the computer-assisted program called SuccessMaker indicates that the majority of these students' reading levels are two to three years below the expected grade

level for their age. Students who are identified as being two or more years below grade level are labeled as Special Needs.

Brown (1991) studied reading and language art curricula in elementary and secondary schools for American Indians and Alaska Natives and concludes that "American Indians and Alaska Natives are the most educationally disadvantaged of all Americans, with the highest dropout rate among all minorities"(p.1). Deyhle and Swisher (1997) identify two main areas of concern being school leaving before graduation and low achievement levels. A cursory review of related literature quite clearly reveals that literacy levels, achievement scores, and assessment for indigenous peoples are an issue internationally (Demmert & Towner, 2003; *Literacy for Metis and non-status Indian peoples: A national strategy*, 1993; Sawyer & Rodriguez, 1992).

Parents in this school district would like their children to do well in these standardized tests (2003 study interviews; school and district growth plans). They want their children to be able to compete with the rest of the students in the province, country, and world in those terms. Parents would also like them to learn and know their own language and culture. This has been stressed time and time again at the parent, community, school district and nation levels in many studies (Demmert & Towner, 2003; Lipka, 2002; *Literacy for Metis and non-status Indian peoples: A national strategy*, 1993; *Royal commission on aboriginal peoples*, 1996). Among many issues arising from the preceding information, two considerations come to the forefront: one of developing and improving Western-style literacies, and that of the notion of looking at other literacies and ways of knowing.

Williams (2000) examined factors which influence educational success among First Nation secondary school students from the Sioux Lookout District of Northwestern Ontario. Using a case study approach, she interviewed students and administrators attending two different programs administered by the Northern Nishnawbe Education Council in Sioux Lookout. The major influences on secondary school success that she found were: academic preparation, cognitive dissonance, utility of education, support, personal background, urban experience, alcohol and drug abuse, and cultural discontinuity. Her literature review suggests that both identity and academics are important in defining a successful Native education and that they should be based on traditional ways of knowing and learning to reinforce students' ties with and contribution to the Aboriginal community as a whole.

Culture

The next story I will recount takes up the notion of cultural discontinuity as a factor influencing student success. Culture and First Nations community members (including students) meet in the Western European educational arena. Must they remain separate?

There are a number of strategies that have been suggested to address school performance of First Nations students and to help them compete with their non-native counterparts. Teacher-training approaches along with instructional strategies designed to improve what Brown (1991) refers to as content area curriculum needs are useful. In Alaska, an extensive initiative has been undertaken with five different regional groups of Native Alaskans to find and implement ways to increase achievement test scores and decrease dropout rates (Barnhardt & Kawagley, 1998). The preliminary findings indicate

that improvements have been made in these areas with the inference being made that the strong emphasis placed on local culture and language in education are the reasons for the observed successes. Lipka's (2002) research looks at the effects that including native languages and culture in schools has had in terms of how it might bring about self-determination. He notes that there has been a steady increase over the last few decades in the numbers of programs and interventions integrating indigenous languages and cultures into tribal and community controlled schooling. He concludes that there is enough evidence to support the inclusion of native language and culture in educational programs for American Indian and Alaska Native students as a way to improve academic and other educational outcomes. He recommends further research that evaluates these programs and that also considers or focuses on the education goals set by these students' communities.

Demmert and Towner (2003) assess studies on the effects of Culturally Based Education on achievement. The authors cite several papers and reports (p.1) that assert the requirement for lifelong learning and education is a cultural context that supports the traditions, knowledge, and language(s) of the community, both as a starting place for learning as well as to succeed academically and build a meaningful life. Inherent in this notion is the need for Native Americans to prepare and participate in the contemporary technological milieu.

Demmert and Towner (2003) examine several experimental and quasi-experimental studies as well as a few non-experimental comparative studies. Of the experimental or quasi-experimental group of studies, they conclude that the connection to culturally based education is weak, with the exception of one, the Kamechameha Early

Education Program (KEEP) study. Although the studies met their criteria for the report, the level of relevance was low. The populations participating in the studies were Native American or Hawaiian and their cultural status was acknowledged, but only one involved evaluating curricula or pedagogical techniques grounded in culturally based education theory. They found most of the research on culturally based education to be qualitative and descriptive in nature, which they stated would not give reliable or valid information with respect to the causal nature of the question of effect on achievement levels. They did find several studies that use comparison groups formed outside the research context. Though they do not believe that these studies provide reliable evidence, they did expand their review to include them to provide insights into possible causal links among key variables for both educational research and program interventions. Tables summarize the construct, statistical, internal (experimental only), and external validities of the studies reviewed.

In their discussion of the non-experimental comparative section of the review, Demmert and Towner note that these less reliable studies in terms of causal link, are much more relevant to culturally based education. They identify a need for scientifically rigorous research that regards culturally based education as an educational treatment or program. At the same time, they recognize the difficulties in implementing experimental and quasi-experimental research. Earlier in the report, they summarized these problems in terms of time, ethics and group formation, as well as measurement. Their interpretations with respect to the non-experimental studies are described as simple associations among variables (as opposed to causal links). Several tentative working hypotheses are put forth including: children who are more proficient with their heritage language also are more

proficient with a second language; and programs that include local heritage language and cultural elements serve to strengthen home-school relationships and this connection may be an intervening variable explaining student achievement.

The authors state that case studies on culturally based education programs add to the discussion on culturally based education programs and the influences on improving academic performance. From a previous review of non-experimental literature examining the effectiveness of native language and cultural programs in the context of schools, they concluded the following. First, preservation and revitalization of language and culture is of widespread interest among Native peoples. Second, young Native Americans also need to develop skills and competencies in English and Western culture if they choose to compete and thrive in the global economy. Third, teaching strategies and ways of interacting with Native students and communities and cultures require reexamination in order to meet the demand for bilingual and bicultural education. Fourth, there needs to be objective evaluation of the impact of these programs on school performance. Fifth, local communities must play a strong and active role in developing culturally based curricula and in delivering instruction. This, the authors claim, in turn strengthens the home-school links that are highly correlated with effective schooling and student achievement.

Another theme Demmert and Towner identify is the idea that there is a need for discussion and study on culturally based principles of high-quality teaching, instruction, and curriculum that start with where children are currently situated in their learning curve. The authors bring in the notion that characteristics of successful students and the factors leading to success in school are all inter-related with social, cultural, and

economic factors that should be assessed, particularly in developing in-school solutions to problems that are strongly influenced by events outside school.

Technology

And now the students, communities, and culture encounter supernatural technology. Indeed, for many community members in this study, technology, particularly in the form that the students are creating is supernatural. The intent here is to look at similar work using technology innovatively in indigenous settings.

Student technology projects are being done in other parts of the world (e.g. www.galileo.org/projects.htm; www.smarterkids.org; www.childnetawards.org/english). Some, such as teachers and researchers (*Paku'i 'onaehana connecting technology*, 2002) at the 6th World Indigenous Peoples Conference on Education working on a Native Hawaiian technology project who presented their students' work from the first year of a three year program, are incorporating indigenous culture into their projects. An important aspect of this project was that through the use of technology tools, the students make meaningful connections between their world in the present, to their culture and history of the past, in order to guide them into the future. While the project leaders' descriptions and explanations indicate a very positive interaction with the students, technology, the community, and the culture, we will have to wait for formalized reports before a more in-depth discussion of the results can take place.

Greenall and Loizides (2001) report on a research study designed to identify the issues and challenges faced by Canadian aboriginal communities when using learning technologies for education and skills development and the approaches they are adopting to develop digital opportunities. There are concerns that Canada's aboriginal people will

find it progressively more difficult to move towards economic self-sufficiency as the country's economy becomes increasingly knowledge-intense. Challenges that affect aboriginal communities' abilities to take advantage of employment-creating opportunities in the field of digital technology include limited financial resources, insufficient human and technical resources, geographic isolation, insufficient technological infrastructures, and limited control over education and training programming and delivery. This study looks at ways in which aboriginal communities are using technology and approaching these challenges. The specific objectives of the study were to: identify technologies being used, why and how; examine the role that technologies play in education and skills training strategies; outline the obstacles impeding aboriginal peoples' efforts to leverage the benefits of learning technologies; highlight innovative solutions being considered and pursued by aboriginal communities; and to provide a guiding reference for aboriginal communities to adapt to their own circumstances when considering how to use technology for learning. To do this, the researchers analyzed aboriginal community case studies from across Canada.

Communities were invited to participate based on a review of the literature as well as consultation with aboriginal, education, government, and private sector representatives who identified places where learning technology initiatives were in place. The research methodology is described as using a participatory approach with community identification, findings and case studies being reviewed by community representatives to ensure accuracy and credibility.

The report outlines key findings in the areas outlined by the study objectives. It also highlights key issues for each community. In response to the challenges summarized

above, the following benefits of using learning technologies across the participating aboriginal communities have been found. There are opportunities for skill enhancement and improved employment prospects with access to computers and technology. Learning opportunities offered by technology can help address different ways in which students learn. Geographical isolation is less important in terms of accessing information with the provision of technology. High school completion can be achieved through distance education allowing students to remain in their communities. Increased local control of education and training delivery can help ensure that technology supports and enhances Aboriginal traditions, values and practices. Technology programs and educational standards have to be relevant to local learner needs and contribute to the achievement of local community digital opportunities.

The authors conclude that aboriginal people are participating more in the global economy and that building technological competency is critical to education, employment, and enterprise. They recommend further collaboration and effort by governments, business, and aboriginal leaders to develop the capacity to meet projected Canadian skill and labour requirements as well economic self-sufficiency.

Discussion

The last story I will tell you has to do with the inquiry. In it, I discuss, critique, and attempt to integrate the literature or stories reviewed thus far. The community, students, their technology projects, and their culture come together here as they do on the pole. Clearly, their stories situate the current inquiry in their own hands.

From the work reviewed in First Nations education and success, two important issues that came forth include the idea that there is a need to develop and improve

Western-style literacies amongst indigenous students as well as to widen the vision of educational success to consider other literacies and ways of knowing. Educational guidelines and strategies using models of success from Alaska can be implemented to reflect a more culturally responsive and responsible approach to literacy, learning, culture, and community. The relatively new concept of multiple literacies or multiliteracies acknowledges not only that there is a need for more culturally sensitive approaches to curriculum but also that there are many ways of meaning-making. The New London Group (1996) write about expanding the notion of literacy to include a "multiplicity of discourses". Specifically, they take into account the context of culturally and linguistic diversity found in society today as well as the increasing variety of text forms brought about by the digital era associated with information and multimedia technologies. In developing their idea, the authors define different design elements used in the meaning-making process and then go on to put them into pedagogy that uses them. As these ideas take hold in the wider community, assessment may reflect a broader vision of what it means to be literate in the 21st century.

The complexity of the interrelationships between culture, language and identity and their relationship to formal and informal education are less clear. It is, however, vital to stress the importance of cultural integration of the formal curriculum when the cultural identities of students are fragile. Deyhle and Swisher (1997) write in this regard:

> We know that strong grounding in culture and language does not interfere with,
> but instead enhances, achievement for young Indian people. Research suggests
> that for those individuals who have strong cultural identities and know their
> language, a culturally relevant curriculum is less important. Conversely, for those

who are less well grounded, cultural integration of the curriculum is more important. (p.182)

It seems obvious that we as educators need to listen to and respect local knowledge and community participation in all aspects of indigenous education. The challenge is how to best implement the changes that so clearly need to be made. Jacobs and Reyhner (2002) describe several books that point to the development of culturally-based educational processes founded upon traditional tribal values, orientations, and principles. These processes, at the same time, need to use the most appropriate concepts, technologies, and content of contemporary education. Finding, creating, and making ways to live in today's world using current technologies, while reconnecting with their own living culture, is the current direction indicated by some recent work.

If achievement and success is measurable in ways identified by Demmert and Towner's (2003) report, then perhaps there is something to be gained from further experimental designs. In their review of literature relating to academic success, they found that attempting to fit studies into designs they were not intended to fit into was not particularly useful or relevant. Their discussion of difficulty with experimental designs (p.10) and their emphasis on the necessity of employing controlled research is unconvincing. Causality, in my opinion, is not the issue. What is clear, however, is that people want language and culture back and they do not need statistical or scientific proof to know that this is beneficial for them. Qualitative designs have provided so much more by indicating the kinds of programs that are well received and considered successful in the communities (fluent speakers, success in later life--jobs, college, identity,

independence). This kind of information enables policy and decision makers to really understand what is going on and gives them an idea of how aboriginal people define success as well as some of the ways that it can be achieved.

The section of the review dealing with Demmert and Towner's previous review of qualitative studies is more pertinent to this study. The conclusions resonate with the current inquiry, especially with respect to the view that there is a need to reexamine teaching strategies and ways of interacting with native students and communities and cultures in order to meet the demand for bilingual and bicultural education. Local community involvement in the development and instruction of culturally based curricula is also identified. The projects that this study is based upon takes both of these needs into account in the development of the student projects that the community is then asked to give feedback on.

In the Aboriginal digital opportunities report (Greenall & Loizides, 2001), culture is plainly acknowledged as central to aboriginal technology use and education. One concern brought up is that as young people are becoming the experts with digital technologies, care must be taken to include respect for traditional culture, specifically for the Elders with their knowledge and expertise. The report writes about participatory approaches and consultation. It is unclear from the report who was consulted, and there were scant details given about how they got their information (e.g. interviews, reports, meetings, etc.) and what sort of participatory approaches were employed. Methodological details aside, the paper is an understandable synthesis emphasizing a holistic approach to First Nations digital technology education.

A good deal of important information about technology and motivation in

learning environments is available, as are studies on achievement and high school

retention for minority populations. Using technology in education and in increasingly

innovative and critical ways has become more common. Using and applying cultural

guidelines to education practices in ways that enhance student learning, motivation, and

cultural identity is an emerging field of inquiry. A sense of connectedness between these

areas is missing; what is needed is a concrete day-to-day look at educational practices

that are community-based, culturally responsive, engage students in critical thinking so

that they are making decisions about what is important to include in their learning, use a

variety of technologies, and absorb students in their contemporary culture. There is also

an absence of a sense of community interaction and involvement with current practice.

This review of the literature of culturally based education in the areas of First

Nations education and success, culture, and technology shows that there is indeed interest

in studies of this nature. There are gaps that have been brought to our attention by both

researchers and study participants that I address in this study.

The study is exploratory in nature. It seeks to find out what members of this First

Nations community think is important in the education of their children, whether these

might be similar to those of other indigenous peoples, and how they perceive community

and culturally based student technology projects.

The projects themselves are designed to develop and improve western-style

literacies and to utilize other literacies and ways of knowing. The teaching strategies and

educational practices incorporate many of the concerns identified in the literature

educationally, culturally, and technologically. Open-ended interviews as well as feedback

from community meetings and presentations illuminate many of the attitudes towards and responses to student technology projects reflecting this kind of educational practice. Do these kinds of student technology projects address the needs and concerns of community members in terms of what they say is important in the education of their children?

The next section describes the study and the findings or stories of the participants. You will notice that they closely parallel those found in the literature.

Wil Sitaatkws Gihlee'e: Carving Process
(methodology)

The adaawak have been told, the simgan prepared, and the ayukws chosen. Once the figures are traced onto the pole, carving begins. The adze chips away big chunks and pieces, roughing out the form taking shape. This nation's carvers cut deep into the wood to define their work. Paint is not necessary, though some use it. Finer chisels and knives whittle and fashion the details--feathers, eyes, mouths. Some carvers move back and forth between the figures, others prefer to work on only one. You can feel the interplay in the continuity of the wood and in the figures themselves. Connecting so many elements and features in creating the whole.

It is time to become familiar with the tools that are used and the process that is involved in carving the totem pole. Larger adzes and axes are used to rough out the figures and lay out where everything goes as well as to delineate their approximate and relative sizes. Participatory and decolonizing methodologies are the symbolic tools drawn on to outline the shapes of the ayukws.

The rationale for my approach both to the student project and the research study itself is based fundamentally in the concepts of Indigenous input into and control over Indigenous education. This is a recurrent theme in the literature on First Nations and Aboriginal education. The researcher therefore is a part of the community and accountable to that community. The research, by design, is collaborative. A case study approach allows the researcher to respect and involve the community in the research process of exploring the responses to student technology projects.

Over the last ten years, I have been involved in a variety of youth video projects where participants have created short videos on topics and issues of concern (HIV/AIDS, smoking, alcohol, drugs, teen suicide, eating disorders, discrimination, power and control, etc.). They work to motivate and inspire students to become engaged in and connected to their own learning. Young people, using the exciting medium of video, made 'movies.' This, in itself, was incredibly motivating.

We were able to look at, talk about, and research a vast array of issues to make a statement. This approach also supports my strong belief in hands-on or experiential learning. In the preface to this thesis, you are given a glimpse of that year's major hands-on project. Having had that experience in the community, it was a relatively straightforward process to incorporate literacy, learning, technology, and motivation into the development of another culturally based technology project.

I listen a lot, to my students, their parents, and the community. I use the student technology project, which is community and culturally based, as the focus of my study, using participatory action research methodology (Hustler, Cassidy, & Cuff, 1986; Kincheloe, 1991; McTaggart, 1997; Wallace, 1998). Both students and community members were actively involved in making decisions about, creating, and producing the student technology projects. The topic itself came from a community member who had been watching and observing the students as they worked on the Sayt Adoks totem pole project. He wondered if we could do something like this on the treaty and said that it was important for people to learn about and understand it better. Community participation, a cultural basis, and technology are the tools and processes situating this research. On a

wooden totem pole, a variety of knives and chisels are the tools used to define the shapes more fully.

Initial open-ended interviews with twenty-five community members identified what they deem to be important to their children's education. Then the students got to work on the research and information gathering phase of their projects. Some of the study participants were interviewed for these assignments. More details on and about the student technology projects are described below. This was followed by an invitation from the students to attend the community presentation, A Celebration of Learning, which highlighted the student projects. Similar to a community feast or public meeting, the floor was opened to the public to elicit feedback on the student's work. In addition to the public comments, open-ended follow-up interviews with thirteen of the original community study participants took place at the end of June through to August 2003. In this way, participants were familiar with what was meant by culturally based student technology projects having seen and experienced the presentations. These conversations focused on the students' use of technology to research and present their ideas about the treaty and how it relates to them, and how these kinds of projects might aid or hinder the accomplishment of community members' notions of what is important in educating their people.

Student Technology Project Overview

The following student project was developed between 2001 and 2003 in consultation, communication and collaboration with local community members including Elders, the school principal, district staff (Superintendent, Director of Instruction, District Technology Principal), Village Government representatives (Education, Chief Councilor,

Cultural Director), and Aboriginal Government (Communication, Housing and Social

Programs). It was undertaken after the bulk of the first set of interviews was completed in

the spring of 2003.

The project itself actively involved students in all phases and culminated in a

student generated media presentation to the community. It could also be presented to

other members of the Nation as well as the larger education community either by the

students themselves or via CD, which is now complete. The interest, enthusiasm, and

excitement generated by this project are remarkable and incredibly motivating for the

students. Over sixty people showed up for the presentation that was held in the middle of

a weekday afternoon. Parents and community members commented positively to myself

and students both in private conversations and publicly using the microphone. Many

people expressed their amazement and pride over the quality of the work produced by the

students. Using a medium that interests and excites students is a very satisfactory way to

achieve and accomplish a multitude of learning objectives with relative ease.

For the project, we looked at some aspects of their treaty and how it affects 12-

year-old students. This involved presentations by local and regional experts as well as

research interviews with various community members. Students used digital cameras,

audio recorders and digital video cameras to gather and record the information. They

were responsible for putting it together using the audio and visual mediums they have

grown up with and can relate to (television, videos, movies, audiocassettes, CD's,

computers, etc.) in a presentation that demonstrated increased use of critical thinking

skills. This involved making decisions about what information to gather, how best to tell

their story, what information was relevant, what photographs and audio or video clips to use, and how to put it together to produce and tell their story.

To develop the historical background for this project, students were familiarized with basic government function and structure in order to see commonalities and differences as they looked at the treaty and how it affects them. They learned about what the Indian Act is, how it was used historically with this First Nations group of people, and how their people lived as a result of the Act.

Basic concepts around treaty negotiation were explored and students looked at the kinds of things that led to both the need for and the ability to go into negotiation. Changes that happened directly as a result of these exchanges such as running water, housing, hydro, and roads were also discussed. The treaty itself focused students on key points of interest that are different from how things were under the Indian Act.

Having learned some of the historical background to the treaty, the students were able to look at things that are important to them in their lives and compare what those things were like pre and post treaty. It has been important to keep in mind the time frame (i.e. not just 1999 – 2000). Resource people were brought in at all phases of the project and students were involved in interviewing community Elders whom they chose.

The culminating project for the students was to critically reflect upon, look at and use the information they gathered to make a presentation to another group of students and the community that identified what the treaty is, the need for it, and how it is or will be important for them in their lives. The presentation itself involved a variety of media including slide shows, a video, PowerPoint productions, and a comic strip (also presented using PowerPoint). These various presentations were compiled into a larger resource, a

CD, of which each student has a copy. Students have also indicated an interest in putting their work on their website though this has not happened to date.

Point of View

I entered this research from the point of view of an "outsider" (Dabulkis-Hunter, 2002; Taylor, 1995) teacher, parent, and community member of two years. I have worked, played, and participated in community life with most of the students who created the technology projects. Our family has been embraced by the community and encouraged to take an active part in its life. We have completed a highly successful technology project on the Sayt Adoks totem pole (funding has since been allocated to produce a 25-minute documentary of the project and process) and engendered a certain level of trust in the process.

Having said that, I realize that we are still seen as visitors in many ways that may affect responses to interviews. It is possible that participants may say what they think I want to hear. Others may think that if they said something negative, it might impact the children negatively. These are also other reasons for choosing the First Nations community open microphone system (at public meetings, feasts, and other gatherings) as a way of eliciting opinions to augment the interview data. Business is carried on in the community in this manner and if people agree to use this method and choose to speak to the issues presented, the information will come from the heart and be a reflection of how they really feel about the work the students have presented.

My own personal biases and enthusiasm may limit what I see and hear which is why I have videotaped everything (with permission), made notes, and reviewed and discussed my analyses with both community members and faculty supervisor.

Setting and Participants

This study focuses on a cross section of people from a rural First Nations village of about three hundred people situated in northern British Columbia. Community members were invited to participate voluntarily and were selected by their agreement and initial availability. Community notices were posted (see Appendix D: recruitment poster) and several Citizen's Band (CB) radio announcements were made notifying potential participants of the various activities, specifically the Celebration of Learning community presentation meeting. Information about the project, presentation, and opportunities for community input and involvement relied largely on the CB and word of mouth. This is the community information network and it is very effective.

Data Collection

As noted previously, I am committed to participatory processes and the research involves collaboration with many members of the community. Data have been collected from several sources for this study:

1. Open-ended interviews were conducted with twenty-five people and videotaped using a digital video camera with mini DV tapes. Interviews were conducted in May and again in June through August of 2003. Several people agreed to be interviewed in small groups (families, friends, co-workers). Initial interviews explored issues of education, language and culture including ideas about what is important in the minds of community members for their children. Following the presentation of the student projects, interviews were conducted with thirteen of the original study participants. Twelve people were not available for follow-up

interviews. Four people I did interview did not attend the student presentation. They were, however, familiar with the student work as well as the processes used in creating them (i.e. field trips, presentations, Elder interviews, etc.). These interviews reflected impressions of the student projects and how those projects met or might meet the community goals for the education of children identified in the first set of interviews. They included the idea of using the student projects as a catalyst for involvement in education as well as a cultural resource for the community. See Appendix A for the list of guiding questions (note that these were guiding questions and that clarification and rephrasing of them by both the researcher and the participant was frequent throughout the course of the interviews) that were developed in consultation with the faculty advisor as well as the cultural coordinator (village) and director of instruction (district).

2. First Nations' community meeting speeches were videotaped on June 18, 2004 where the projects were presented at a Celebration of Learning. Following traditional protocol, an explanation was given about the procedure and purpose of the discussion. A specific request for suggestions for improvement was issued. This allowed interested people an opportunity to join in and by doing so, they gave their permission to be videotaped (along with their written permission).

3. Journal entries and self-reflection notes were used to track the evolution of the project. Changes from the initial basic plan were identified and the rationale for those changes explained. These data provide an overall documentation of the path the research followed. They also provided space for any other observations or

responses to questions about what changes or improvements could be made for future projects.

4. Student technology projects provided concrete samples of the work that was discussed in the interviews and meetings. These projects took several forms including video, slideshow, comic strip, PowerPoint, and poster. They are compiled on a CD and are to be linked to the school website.

5. Students conducted oral history interviews with Elders and community members as part of their projects. These also contributed to the overall depth of the data collected.

Data Analysis

All data were partially (notes with some quotations) or fully (word for word) transcribed into Microsoft Word. Preliminary analyses were used to generate categories, themes, and patterns from the first set of interviews. Techniques and methods outlined in *An Introduction to Qualitative Research* (Flick, 1998) were used. Open coding was used to develop and express data in the form of concepts. For instance, study participants spoke about what they would like children to be learning, and they spoke about education in terms of knowing how to prepare traditional foods (sea lion, oolichan, salmon, soap berries), what to do and how to behave at certain kinds of feasts (stone moving, memorial), and how to perform (as well as knowing when and why) traditional songs and dances. Axial coding further refined and differentiated these preliminary concepts and categories into cultural practices, cultural knowledge, and awareness of culture. The data were repeatedly reviewed for patterns and relations between the categories. Finally, selective coding was used to come up with the theme of culture. Evidence and

connections to the categories and themes that had emerged from the initial interviews were looked for in follow-up interviews and the community presentation. The transcripts and notes were examined in a similar manner to ensure consistency. To check the soundness of the interpretations and test the utility of emerging analytic categories, initial findings were presented to nine study participants (this was an open invitation via Citizens' Band radio (CB) and word of mouth), one student producer of a technology project, and six other community members in December 2003 for comment, clarification, and suggestions.

Ethical and Political Considerations

To explore the research question in the village, I obtained written permission from all participants as well as oral permission from the village government and Elders Committee. Since the topic for the project had initially come from community members, this was considered appropriate in this case. Students were asked for their permission to use their final projects as community resources prior to their commencing the projects. Smith (1999) suggests that Aboriginal communities seek answers to the following questions when they consider requests to do research in their communities:

Who defined the research?

For whom is this study worthy and relevant? Who says so?

What knowledge will the researcher gain from the study?

What are some likely positive outcomes from this study?

What are some possible negative outcomes?

How can the negative outcomes be eliminated?

To whom is the researcher accountable?

What processes are in place to support the research, the researched and the

researcher? (p.173)

The participatory nature and involvement of community members in the study

facilitated ways to address the ethical and political concerns reflected in Smith's

questions. For example, one person was happy to have me quote her, but was adamant

that I not show the video footage. This is reflected in both the written permission from

her as well as the fact that I have not and will not use any footage of her in any

presentations I might give. In addition to obtaining approval from the University of

Victoria's Human Research Ethics Committee (http://www.research.uvic.ca/committees/

hrec.htm) to engage in this research (see Appendix C: Certificate of Approval), I have

informed participants that I will show them anything I plan to use of theirs before I use it.

This is also why I presented the findings to participants in the community in December

2003. While I indicated in the ethics proposal that I would show all participants their

individual transcripts, participants themselves have pointed out that this is not necessary

since I am presenting and showing them what I am doing before it goes elsewhere. The

findings of the study, along with my interpretations of them are the focus of the next

chapter. The symbolic pole is ready to be raised.

Hitkw Pts'aan: Pole Raising
(findings)

The pole is carried
to the place that is chosen
where a hole is dug.

Everyone gathers
for the raising, naming, and
blessing of the pole.

Dancing and drumming
surround the pole that is now
towering above.

Sharing its stories
as a record of the times
with everyone.

The pole is presented to the community as the data findings are presented to the reader. Participants shared their thoughts in open-ended interviews and these are grouped together as a way to describe the main ideas about education that emerged from the conversations. Community feedback on the student technology projects from the public presentation and further interviews are again grouped and related to the initial community ideas on education and culture.

Initial Open-ended Interviews

When asked about the importance and purpose of education, the main focus areas from participants were: achievement and level of attainment, employability, and culture.

Community members want their children to complete school and continue on into post-secondary education. "Try not to quit, it's hard to get back into it" (Ron). They see this as a way to survive in an increasingly complex society and world. "Education is important for survival. You/we can't depend on handouts" (Nel). Education is not only

spoken of as a way for children to succeed "outside" the village of Gingolx, there is also a need for university and college educated people within the Nation. Community members express a strong desire for their own children to be trained and hired for work within their lands "Especially here, now, after the Treaty. They're looking for qualified people. Things that hang on the wall, those certificates" (Nel). Mac suggests that the reason the young people think those degrees and pieces of paper are so important is because they do not know their own culture. He claims that assimilation did work. However, he remains optimistic and is involved in teaching the language and culture to others. Participants agree that education must prepare children for life outside the village communities as well as for life inside on the lands of the people. As a consequence, choices and options should not be limited by any lack of educational attainment.

One participant discusses some of the problems students have in completing school and uses his own son as an example. The support they have been able to give him does not seem to be working. He refers to child abuse and the need for counseling for children, right in the school, always there. Then he relates the current situation for young people to that of people like himself who suffered similar trauma at residential schools. He says that kids cannot get through these kinds of issues on their own and that they need help. He adds that they can make it through to about grade 12 and then they turn to alcohol and drugs. He goes on to talk about how different it might have been had counseling been available to him at a young age.

Connected to the idea of completing school is the importance given to the role of education for the future. Jobs, careers, and employment are cited as a vital part of education. "For today's job entries, you need at least college, not just grade 12" (Nel).

This refers to education that prepares students for work that already exists as well as for new opportunities involving an entrepreneurial approach to job creation. "We've got to find ways and means to create jobs ourselves" and to "keep our people working" as well as, "This village has a lot of potential of creating jobs" (Doug). "It's a requirement now for tourists to buy our traditional things we make – poles, clothing, baskets, whatever. I'd like to encourage that" (Chuck).

This tiny isolated First Nations village was established as an Anglican missionary village that later became an Indian Reserve. The people were governed by the Indian Act and had, as their warden, an Indian agent (who was generally, not Indian). Historically, they lived a subsistence lifestyle, fishing and hunting in season. The missionaries 'civilized' them. Many people now live in material poverty and job prospects are scarce. Education is seen as one way to overcome some of these economic problems. Dee says that the purpose of education is,

> ...to get a better life, get a better job, so that we have that quality of life. Without it, yes, we'll still live in poverty. No, we're not filthy rich, but we have education. We're not over top of everybody else. It does make a difference with the comfort in your life and stability.

A number of people see the treaty as a means to provide more educational opportunities for students, both young and old, as well as to gain increased control over natural resources and lands within their territory. The potential to increase employment and decrease poverty is perceived to be much greater than in the past.

For the future, Ann tells her children and grandchildren to, "Go out and finish everything you need to do something you have dreamed of through your years of growing up." A strong believer in completing school herself, she encourages young people to, "go further, maybe for lawyers or doctors" because, "we need so much in the valley."

In this community, education and culture are as one. They are inextricably bound together and do not exist separately. This is apparent from responses to the question asking about what is important in education.

Education is going to school, learning all the new technology PLUS learning your own culture. (Trina)

Whatever a person values. The culture. (Marie)

What we do in the communities. Learning from the Elders. (Steve)

Learning to know the culture is essential for the people in this community. At an individual level, it provides a way to "find their roots" (Ron) and to "learn about the things we believe in that makes us who we are" (Cynthia). For community members, the culture teaches everyone how to live together properly as a community and to help each other out. No one is alone (Cynthia, Ron). This is the culture. The tribal system functions on the basis of interconnected tribes, houses and families, each of which has very specific roles and jobs to perform within society so that everything functions smoothly and efficiently to take care of everybody. This network extends to the wider community of the Nation as well as other First Nations people. Participants in this study emphasize the need for the children to learn, know and understand these aspects of their culture.

Traditionally, the role of teacher fell to the aunties and uncles on the father's side, the wilksibakws. Nel remembers her grandfather talking about how the aunties and uncles taught them everything. In some families, this still happens. Rites of passage for boys and girls are taught and celebrated through the teachings of the paternal siblings. They are responsible for helping their nieces and nephews learn about what to do in different situations (e.g. feasts) and what their role in their house is. Since many of the cultural practices have lapsed or been lost, this too has been identified as part of the cultural education to bring back and revive. Other participants note that family and community support in teaching children is a very important aspect of cultural education.

As education is bound to culture, so too, is language. Every person who participated in the study spoke strongly about his or her language and culture. While one person was able (she was very uncomfortable and almost apologetic) to say that she herself could survive without being fluent in the language, she wants it to be taught in school and thinks it should be used more. Everyone else spoke about the need for language revival.

While discussing how to go about learning the language and reviving the culture, Ron exclaims,

> How we lost it--it hurts us. We lost probably about two generations of it, our culture, just by taking us out of our homes, our own villages and sending us to the white man's world, and trying to learn their culture. Within the seven-year span, they did a good job of taking the culture away from us, which we're having a hard time to revive now.

Celia, an Elder, talks about her own children,

> I don't know how it came to us to speak English to them – it just happened. All
> the kids went to school and when they came back, it was just so natural for us to
> use the white man's language. Then our language finally faded away… but it's
> coming back now.

Given this context, it is not surprising that community members are very clear
about the kinds of things they want their children to be learning and doing, particularly
with respect to their culture. When Doug started up cultural dancing in the communities
several years ago, a man from one of the other villages said that Doug had "reawakened
our culture" (Doug). Nel claims that, "You hear it everywhere we go, we need to revive
our culture."

Celia speaks of learning her culture at a really late age because she went to
residential school where she was forbidden to speak and punished for using her own
language. Once she came home and got married, she learned that they must get rid of the
totem poles and customs. At that time, she did not know that that was her culture being
thrown away. It was only later that she learned more about her culture at the Vancouver
School of Theology. The irony was not lost on her and her fellow students. They
discussed how the missionaries were the ones who told them not to make regalia and
blankets or to practice their customs and ways. Years later, here they were at a
theological school being told to make their own blankets and regalia, sing their songs,
dance their dances, speak their language, and to bring back their culture.

The meaning of the language is concerning for several participants.

We're losing out in a big way with the language. If you talk to an Elder, they are using so much more than the simple commands that everybody knows and uses. When you translate something that they say into English, you lose that [meaning in] translation. (Trina)

When you start speaking. When you translate from Nisga'a to English, you come close to the meaning, but you don't actually get at the meaning. (Mac)

Ron says that when he listens to his Dad speaking with another Elder, it sounds different from what they are teaching today. Doug uses an example of the word for taboo in a story from the Frog tribe; the meaning is different in his language. He sums it up by saying that it means a lot and is more meaningful when you can speak and understand "our" language.

Fluency is a real worry for most participants and community members as many are not fluent themselves. Table 5:1 shows basic fluency levels (fluent, some, none) of twenty-five participants ability to understand, speak, read, and write the First Nations' language of the nation. Four community member participants are not from this nation, having come for either work or marriage. To help them become more conversant in the language, they have recommended a number of approaches. However, as Ward says, I have to "put more effort into it … more or less. That's just all there is, just putting more effort into it… individually." The notion of personal responsibility resonates strongly in the interviews. There is also an expectation that the school has a large responsibility for language and ought to be hiring fluent language teachers. Daily language classes at the Adult Education Center are suggested for older students since community members

acknowledge that large numbers of the parents cannot speak their language. Several

people referred to other cultures' use of their own languages and put them up as good

models for use (e.g. Gitsan people, Asian groups, etc.). Cynthia dreams of an immersion

school like the Schuswap one near Kamloops, as she believes that there is a need for

daily language to avoid losing it. Doug concurs, saying that language immersion is

critical to the revival and survival of the culture. He suggests 100% language immersion

in school from Kindergarten to Grade 4.

Figure 5.1: First Nations language fluency of 25 participants.
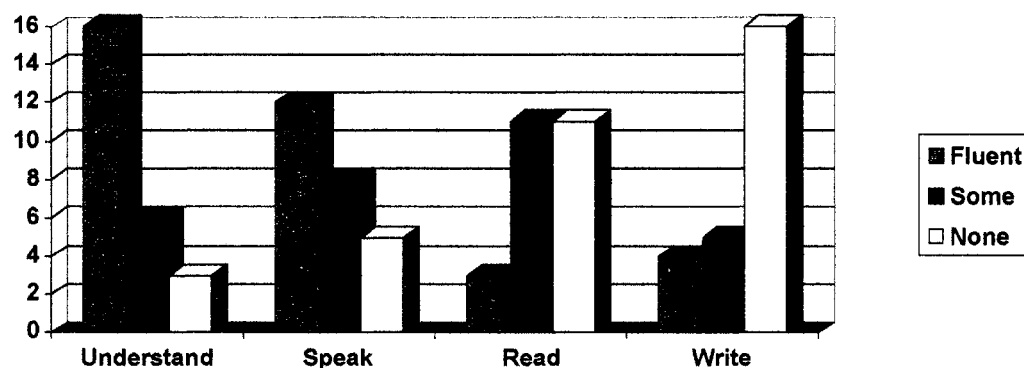
There has to be a purpose for using the language. "If we don't learn it and use it,

it'll go." Cynthia would like to see language and culture blending into everyday life, not

just half an hour a day at school. Taking it further, she envisions learning based on the

Rediscovery Model for the community, which she has already used in the successful

programming and implementation of two summer programs for youth. A House of

Learning is what Nel would like, where you could learn about and practice everything to

do with our culture. Ann senses that the best way to learn is at an actual event, when it is

the genuine thing. The only place people really use the language is at feasts, which is why

Lee wants to learn more of it. She wants to be able to understand what the Elders are

what the Elders are saying in their speeches to the public. Doug says that we need to use

the language with the children and have them use it with us "lots of practicum."

One of the barriers to adult language learning and recovery is that,

> a lot of the younger people are afraid to speak it because when you do
>
> speak it, you get laughed at because it comes out wrong. When I try to
>
> speak it, I can hear it correctly in my mind, but when it comes out of my
>
> mouth, it sounds different.

Trina continues by emphasizing the need to get over shyness and repeat and practice with

each other. Mac says that the right way to respond to incorrect use of language is to

model the correct way, so that the person learns and, he adds, people should not laugh

when you are trying. Alf maintains that the laughter is directed at the sound of the words,

not the person saying them. Sometimes, he says, a different pronunciation gives a word

an altogether different and sometimes quite humorous meaning. He does not want people

to be offended or to stop trying to use the language.

Ann identified the increased interest in learning the language and practicing the

culture with the ratification of the treaty. She hopes and prays that this interest will not

fade as she herself realizes that she had taken a lot of the cultural practices and, indeed,

her facility with the language, for granted. Her own children understand but do not speak

the language and she wishes she had taught them more when they were younger. This

woman now describes herself as a cultural teacher and has taken on that role in her

interactions with other, particularly younger community members. Not a week goes by,

she says, that someone is not at her house learning how to do some kind of cultural

practice. Many come because they are interested in learning how to preserve foods in the traditional way.

As language is connected to culture, so too is traditional food preparation. Smokehouses dot the village as do ganee'e, ladder-like hanging rack contraptions covered by netting to keep the birds off the fish drying in the sun. Whatever is in season and gets caught, gets used (salmon, halibut, oolichan, sea lion, seal, deer, moose, bear). Canning and jarring, as well as freezing are other food preservation methods. Some, such as freezing, are more contemporary though still based on traditional preparation techniques. Village chiefs and their crews render Oolichan grease up the river. It is a highly valued commodity both for domestic use and as a trade item with other aboriginal communities. Tealeaves and berries are also gathered and dried or canned for later use. Families work together to put away enough to last through the long winter for themselves, their extended families both in and out of the village (i.e. urban dwellers), as well as making contributions towards filling the homes of village Elders. Time and time again, participants emphasize the importance and need for children to know how to gather and prepare these traditional foods.

Preparation of traditional foods is linked to the concept of survival and independence, both physically and economically. As community members prepare healthy, nutritious foods, harvested from the sea and the land, they are taking care of themselves on their terms. No one is looking for or receiving handouts. Life in community is about helping each other out. On a global scale, if there is international turmoil or war, these people will survive (Doug). They have the knowledge and skills to look after themselves and want their children to learn and know these things too.

Traditionally prepared food is both a mainstay and a specialty. While daily survival is important, specially prepared foods are always featured at feasts. Feasts are held for a variety of reasons (deaths, memorials, stone movings, weddings), all of which involve carrying out the business of the community. Study participants are resolute in their desire for all children, in fact, all community members to know everything they can about all the different kinds of feasts. They would like everyone to come out to all the functions and take part in tribal and house meetings so that they know and can learn about their role in the proceedings. Children and adults are encouraged to ask questions if they do not understand what is going on or why things are done a certain way. Dee has taken it upon herself to be her children's teacher as her own parents are not traditional practitioners of the culture (though they say there is a need for young people to speak the language). She says that she goes to all the feasts and asks her auntie for advice on cultural protocol. Lee attends the functions to learn from the Elders how things get done and says laughingly that she does not want to get them mad by not doing it right.

A characteristic and highlight of many feasts is traditional and contemporary cultural dancing. Lewis passionately identifies culture with,

> ... dancing – that I love so much. It soothes the body. Once you finish one of these sessions, it's so uplifting – it feels like everything came out of you, your anger, your stress. By going into dancing, that's part of our culture, our grandparents used to do it and they said the same things themselves, it uplifts them.

Students and adults learn to drum, dance, and sing traditional and contemporary songs that they share and perform at different events (feasts, presentations, performances, pole raisings, blessings).

Along with the common cultural practices outlined above, a large portion of the participants expressed an interest in reviving past traditional cultural practices, particularly those related to the art tradition. Cedar bark and Chilkat blanket weaving, canoe and totem pole carving, as well as crest and symbol design work were all noted as learning opportunities for both themselves and students. Some remember grandparents doing these activities and would like students to learn them too. Several projects have been initiated and are held up as models by community members. Furthermore, they want to insure that the practices continue to be taught and that others are brought forth.

Cynthia would like to see a return to living according to traditional laws. Several participants are concerned that the "young generations have no clue on these" [laws] (Chuck). One law that is frequently broken has to do with intertribal marriage and the way that these relationships are eroding traditional support systems within the nation. Doug put on a series of workshops with each of the tribes in the village on these laws that enabled people to learn more about them. Chuck articulates the need for more knowledgeable people like Doug to continue teaching these cultural building blocks. He considers the laws extremely powerful and important to all of his people. Nel proposes a printed handbook as a resource that outlines the laws in detail. Future projects for Doug include expanding his workshops on matriarch law and culture in the Nation and elsewhere. What is apparent from the people involved in this study is that they really want students and community members to learn about and know the cultural laws.

The laws are as fundamental as the totem poles to the culture. The unity pole in the village that was carved by students working with the cultural director is named Sayt Adoks and is meant to celebrate the coming together of all the crests and tribes in the village. When this school district was formed, a unity pole was carved in another village and raised at the high school for all the people in the Nation. For many people belonging to this First Nation, togetherness, support, and sense of community is the essence of their culture. It is this that allows and enables it to flourish. These unity poles embody this spirit and stand for all to witness.

Here in the midst of cultural revival there is nonetheless the issue of survival. Cultural survival, economic survival, physical survival, and independence. In today's contemporary 21st century world, educating responsibly will make a difference.

Students and community members have identified the kinds of things they think are important in, to and for education. They have also indicated a preference for participatory, practical, and purposeful ways of learning and teaching. In the methodology section of the paper, an example of student technology projects was outlined. The products from this as well as other student technology projects will be discussed as the next section illustrates connections between the student work and the community's expressed educational wishes for their children. Incorporated in this will be community impressions of the technology projects created by the students.

Community Meeting and Follow-up Interviews

This section lays out the community responses to the student technology projects from the community presentation meeting and the post-project interviews, and makes connections to the information gathered in the pre-project interviews. The interview

questions are different to take into account the participant experience of having seen the student technology projects and presentations. I consider how the student produced and created technology projects address the community wishes for their children's educational needs, keep in mind the student's interests in learning, and document some of the influences these projects have had on the community itself. I did not ask whether ideas about education had changed as a result of seeing the student projects, nor did participants suggest that they had.

Several projects were completed this year. One, on the treaty, is referred to as part of the process described in the preparation section of this paper. Other classes completed technology projects on cedar bark weaving and the oolichan fishery. All projects had a hands-on component (traditional and contemporary technology) involving Elders, community members, and experts in the field, as well as a community presentation. Study participants responded to the questions on student technology projects having seen or been involved with one or more of these projects. Their responses are grouped according to the categories developed from the first set of interviews.

At the elementary school level, it is difficult to determine the probability or rate of high-school graduation and future employability. Community members do, however, have a sense of the influence that the work students are doing is having in these areas.

I see a lot of improvement in what they're doing in the line of technology.

…In future, once they've got it [technology skills], they won't have a hard time finding a job. (Doug)

Doug says this is one of the main benefits of these projects. Matthew concurs, adding that the technical skills are beneficial both to the students and the community. He also emphasized that the students,

> ... start to see how learning is interrelated, different aspects of different subjects of different courses all play together – they're not individual bits of knowledge.

Responding to a question about how using technology influences student-learning, participants said,

> It makes it more interesting for them to learn. They see what they're doing. The finished project. They can go back and look at it and see what they've done. That way, they learn more. It's easier for them to understand once they go through it [the project] themselves. (Cam)

> ...you learn a lot when you're doing a background on them [Elders]. About the treaty, you learn a lot about it. You remember more, more about what they were talking about. (Lee)

> A neat, new way to learn. (Cynthia)

> It incorporates many facets of their learning in a practical way so that they have something they can show others and so that rather than just one aspect, ... it brings in all their learning and it shows it in a practical manner in an area that is important to themselves as well as their family members. (Matthew)

These comments focus on knowledge and learning as well as the motivation to learn. The notion of reviewing and reflecting on their learning is inherent in the process of creating and producing these student technology projects. Trina brings in the use of perspective as well as the way that individual learning levels can be incorporated by using technology.

> With them having to do that [project process, review, reflection], it's at their
> learning level. Maybe others have the same learning level. [They can] see through
> someone else's eyes that are just learning it too.

Using technology in these ways allows for a wide range of abilities and understandings. Trina suggests that it is not only the students who may have differing levels of understanding and that these projects help others to learn too. A recursive and reflective style of learning engaging students wholeheartedly in the process is facilitated by the manner in which technology is brought into play. In *A post-modern perspective on curriculum*, William E. Doll (1993) writes,

> Primary, doing experiences need not stand alone; they can serve as the basis for
> secondary, reflective, indeed self-organizing experiences. Every completed action
> can serve as a new beginning, as the springboard for new and open "ends-in-
> view." (p. 118)

Multimedia technologies serve as a means for just such a new beginning and as Trina adds, they "reinforce what students are learning and allow them to want to learn more".

Both Cynthia and Lee talk further about how the students really got into, liked, and were excited by doing the projects. They attribute this to, "getting to use the

equipment" as well as being involved in interviewing, simulations, field trips, and other activities related to the topic. Doug agrees, saying that it helps the students to get out and do something. Again, using technology is seen as a source of motivation, as is the hands-on participatory nature of the projects. It seems obvious that if students are involved and engaged in learning that is interesting to them and their community, there is a greater likelihood that they will be motivated to continue with their education.

Several participants talk about how these projects bring in and involve the community.

When they see that, a lot of people see everything the kids are learning. It grabs their interest and they want to learn more, the way the kids are learning more. (Trina)

Get more into culture when they see what the/ir kids are doing. (Cynthia)

It [seeing and/or being involved in the student projects] helps people get into the culture. (Lee)

What the students did and what they're doing is helping other people from here that have never experienced this have a little bit of a view inside of what happens. (Trina)

Encourage them [community members] to get more into the school and activities going on at the school. Maybe learn themselves, like the cedar bark weaving. (Cynthia)

Lack of parental/ home involvement is often cited as a major factor contributing to low achievement for First Nations students (Demmert & Towner, 2003). In this school district and school, increased parental involvement in the school is identified in the school goals and plans. Projects described in this thesis support this goal by involving community members in the education of their children as resource people, learners, supporters, encouragers, and witnesses to their achievements. Community members are happy to be involved in things they consider important and relevant to their children's learning. Parental support, participation, and encouragement from home and community for the projects they are working on help to improve the likelihood of student success in terms of school completion and future employability. Elder support for the student technology projects is apparent from what Mac has to say. He was in the audience during the Celebration of Learning when the students presented their projects and made the following comment.

> I got a chance to sit with some of the Elders and they were saying in their own language how pleased they were that the students are able to do that, because in their words, that is what we need to do now. And that is what I was saying earlier, in order for our culture to survive, get it down somewhere. Technology is one of the ways to go because not everyone is going to be speaking our language all the time, even though that is what we want.

The above quote describes Mac's as well as other audience member's reactions to the student technology projects. Their comments focus our attention back to the First Nations culture that is earlier recognized as vital to education for all of the community.

Elders are recognized as the biggest cultural resource available to students and other community members. Several participants noted that we are losing Elders; they are dying out, and there is a great need to preserve and document their knowledge of the language and culture. Mac and Doug both say that using technology to do this makes sense. A sense of urgency pervades Mac's comments:

> Although people think that it [technology] is taking away from us, I think it is adding to it. We have it recorded because, as one Elder put it, 'Once I'm gone, all the knowledge and wisdom will be gone too.'

He observes that using technology is one way of preserving and documenting both the language and the culture for current and future use. This notion of the technological medium as a means of achieving desired results is evident in what another participant, Matthew, says:

> Every bit of knowledge a nation has or a people has, needs to be recorded, needs to be kept for the future in some manner. Whether by oral tradition or video camera, it doesn't matter how, but it has to be there for the future and this is just one more of the techniques or tools to be used for that purpose.

All participants as well as other community members would like to see CD's and DVD's of these student projects as well as the web site being developed from these projects. This would provide more cultural resources for people within the community as well as those living in other parts of the world. Trina is concerned for her nephews,

> I would go out of my way to purchase it [CD of projects] and send it to my

nephews who have never seen or had a chance to experience these kinds of projects that happened this year. They more or less lost out on learning this kind of stuff in the community when they had to move away to go to school outside. Now they're learning a lot of different things out there and have lost a lot of our culture.

These student technology projects are considered beneficial to students and community members both in the process that is used to develop, produce, and present them as well as the contribution they make to community cultural resources. Doug contends that future generations will benefit more from these uses of technology than this generation. He claims that not enough people understand technology and what the old people really talk about are the actual things that the kids and others are doing (singing, dancing, drumming, carving, etc.). Since hands-on participatory processes that are based on community interests characterize these projects, the overall consensus is positive. The projects incorporate traditional cultural practices as well as a visual technical multimedia presentation. The witnessing by the community is an integral part of the process as is the celebration of student and community achievement. Matthew would like to see projects like this in all the communities.

Alf likes the visual aspect of the student projects as well as the idea that people will watch and be talking about seeing "grandma" and what is happening. He talks about the First Nations television shows that do not use English, just their own languages. Doug says that we need to keep up with technology and he'd like to, "Get Kermit and Piggy talking in [FN language]!" Alf looks forward to the next generation putting the culture,

language, and technology together and doing an even better job of it. At the same time he

cautions us not to move too fast, to listen to the Elders, and above all, to honour and

respect all people. Ann claims that respect is the big thing that the culture teaches us, and

to her, it is of primary importance to education today.

Several participants offer advice and thoughts about ways for their children to be

more successful in their lives and in achieving the education they need to survive and

thrive in today's world. One Elder recounts the following story:

> ... My mother said, 'On the road where we walk, there's a hole there. There's
>
> dangers if you don't watch what you do with your life. You gonna run into this
>
> hole and there'll be no end for it.'
>
> And what does that mean to us? We thought we just gonna fall through the
>
> sidewalk, boardwalk and we'll climb out again. no.
>
> That hole is a graveyard like, or any accidents might have happened. You gotta
>
> learn. Find means and ways how to protect yourself and what to do.
>
> 'Some day, you gonna be on your own. And remember, if you have children, take
>
> care of them', is what my mother said, 'Take care of them. Th'each are little
>
> angels God has given you, that you're gonna have, your family.'

The hole then, is a doorway, an opening, an opportunity. It is also an exit, an escape, an

ending. Producing and using student technology projects in the ways that have been

suggested by community members creates openings and educational opportunities for all

to learn from. In the totem pole process, the pole has been raised and it is time to

celebrate at the pole raising feast or lilgidim.

Lil'gidim: Feast
(discussion)

The feast. The pole has been raised, named, and blessed--witnessed by all. Join in

the celebration as we culminate the day with a feast. Let us fill our stomachs and our

hearts as the day turns to night. There is business to be taken care of and many things yet

to consider. The bills must be paid, people need to be acknowledged, thanked, and given

gifts. Those who witnessed the pole raising will be recognized. We may hear the stories

told again. There will be drumming, dancing, and singing. There will be speeches.

I would like to thank the community members and participants in this study for

the time they took to share and contribute their ideas that have helped shed light on this

inquiry. Community members taking part in this study established three main areas that

they consider to be important in education: level of education achieved or attained,

employability, and their own culture. The hopes and desires they have for their children,

grandchildren, and themselves are encompassed by these basic beliefs concerning

community education.

As expressed by those interviewed for this study, self-determination, autonomy or

the freedom and independence to make your own decisions about where you go and what

you do in your life are all very much connected to education. My understanding is that

they perceive the completion of high school as well as further post secondary studies as

an important avenue for student success. Education is seen as a way to be able to

contribute and take part meaningfully in contemporary community life and culture.

Paradoxically, the education offered by the Federal Government and western European

society under the auspices of the Indian Act is blamed for the sorry state that education of

First Nations people in Canada is currently experiencing.

I would like to acknowledge and thank the community members for their

perseverance in preserving, maintaining and reviving their culture that is at the core of

the symbolic totem and is the essence of this inquiry. Participants spoke of the pain

around language and culture loss resulting from the schooling they received. The Indian

Act is one example of legislated colonialism or imposition of one culture upon another

practiced by the Euro-Canadian government on First Nations people. Formalized,

institutional systems of education fall under the provisions of this act and have been

highly criticized for the goal of assimilating aboriginal people. Children were, and

continue to be, taught western European ways. In residential schools, they were taught

and expected to do menial labor (Miller, 1996; Milloy, 1999). Among those who ran

those schools, completing high school was not considered important for Indian children.

Participants in this study say that it is, as is going on to post secondary training.

Obtaining a formal education is thought to enable conversations and discussions that

work against further colonization and assimilation of First Nations cultures. An education

that is relevant and self-directed leads towards increased independence and self-

determination.

Education, then, is seen as both the problem and the solution. However, it is not

just any education that is wanted. A culturally based education that allows for, in fact

encourages both Western and First Nations educational goals to be strived for and met

makes sense. By increasing the similarity of social cultural expectations of the school to

that of the students and their communities, the community beliefs are upheld. The

developmental aspect of Cultural-Historical-Activity-Theory (CHAT) where cultural activities create internalizations of knowledge, values, and cognitive routines over time is important to keep in mind in considering formalized school settings. Traditional culture contains meaningful material that people access as they associate new information for processing. If there is personal and social relevance or a relationship to prior knowledge and experience, learning and recall are improved (Demmert & Towner, 2003). As the connections between student experiences with culture of the community and academic curriculum are brought closer together, there is a greater potential for or probability of academic success and achievement.

I would like to thank the students and all those who helped them as they developed the projects upon which this study is based. The student technology projects that were both community and culturally motivated clearly fit in with the desires for education expressed by community members participating in this study. By taking part in creating these multimedia presentations, students are both learning and accessing prior cultural experiences and knowledge that in turn increases their potential for academic success. The projects and the processes used to create them also contain all of the elements laid out in Demmert and Towner's (2003) review for culturally based education interventions.

Although their native language is not used in the actual presentations, it is recognized and was referred to frequently throughout the project. Culture and language preservation and revitalization underscored much of the treaty negotiations as well as Elder's conversations around life over the last century. Students interviewed Elders, took part in simulations, and listened to various presentations on aspects of treaty processes. In

this way, teaching practices stressed traditional cultural practices and adult-child interactions. Community members, leaders, language and culture instructors, and Elders were all involved in these projects so that traditional culture and ways of knowing and learning were incorporated into the projects. At community gatherings, meetings, and at the Celebration of Learning, the spiritual leaders of the community always open the proceedings with a prayer or blessing and they are included in the planning of these events and proceedings. The curriculum for this project as well as in my classroom and community are not separate when it comes to recognizing Native spirituality, which is a fundamental part of life in the community and also connects with the component of Culturally Based Education that refers to knowledge and use of the social and political mores of the community. The participatory nature of these projects reinforces community mores that also enables strong participation. Whilst I, as the teacher, facilitated various aspects of the project, it was a collaborative effort on the part of many people.

Implications

There are many implications for student technology projects such as those described in this study and commented on by community members of this small rural First Nations village. Findings from this study as well as the literature suggest that culturally based student technology projects are a useful and successful example of a Culturally Based Education (CBE) intervention or program. I believe that the methods used in both student and community research processes contribute to the expanding body of literature on ethical research practices. Community responses indicate that these projects increase and strengthen the potential for academic achievement and student success. It is plausible that this might be the case in other areas. Consideration and

inclusion of other "literacies" that enhance the ones with which we are more familiar is prudent, given the interest in and engagement with projects such as these. Individuals and communities do not have to remain isolated. There are abundant opportunities, particularly since the onset of digital technologies, to network and share some of our knowledge of what is working well in our communities.

Student technology projects such as the one described in this study certainly have a place in CBE programming. Integrating them into the formal school system is beneficial for many reasons in terms of cultural content and community participation in the education of children. Such projects also provide an avenue for cultural preservation and revitalization, both in the practices or processes involved and in the resources produced (e.g. photographs, audio recordings, video, CD, DVD, web page). There are challenges that come with projects such as these including those cited in the literature of financing, technological infrastructure, human and technical resources, geographic isolation, and limited control over education and training programming and delivery. I found that it was important to consider cultural, educational, technological, and financial issues in the preparation and realization of the student technology projects (see Appendix B). Careful planning, flexibility, open communication, and respect were critical to the success and involvement of everyone in these projects.

Respect is acknowledged as culturally important for all members of the community. It is of great concern for the Elders in the teaching of their young. For the student technology projects, respect has been integral to the process. Protocol and ethics are all based on respect and this work builds on these aspects of community within the culture. To this end, post colonial theory and methodologies are used and supported in

this work, as are participatory processes (participatory action research) (Batten, 2003;
Battiste, 2002; Laenui, 2000; Reason & Bradbury, 2001; Smith, 1999).

The direction and focus of student projects comes from the students and their
communities. The participatory nature of this process ensures community and cultural
relevance, which in turn relates to student, parent, and community motivation to become
involved. Educational practice that is pertinent to the community and the culture, and that
has people from the community engaged in meaningful ways is effective in motivating
students to complete school and pursue post secondary opportunities (Alaska Native
Knowledge Network, 1998a).

Participatory methods are, I believe, essential for any kind of educational
endeavor that calls for community input. To take responsibility for your own learning,
you need to have some say in what it is that you will be learning. The reviewed literature
strongly supports processes that involve community members in charting the course of
their own education (Alaska Native Knowledge Network, 1998a;, 1998b; Demmert &
Towner, 2003; Greenall & Loizides, 2001; Lipka, 2002; Smith, 1999). While this is not a
new concept, it does require an openness, willingness, and trust to engage in these kinds
of processes. It also requires practice, skill, and patience. Truly participatory processes
challenge traditional Western views of what it is to be a teacher and how that process is
best carried out for the benefit of students.

Culturally and community based student technology projects also have the
potential to lead to increased levels of achievement and success in other areas. Starting
with the community and the culture, student learning is continually and repeatedly
processed with their own life experiences so that there is a greater likelihood of retention

and recall. Educational practices that enhance and reinforce culture and community while at the same time developing Western concepts lead the way to higher academic performance. Work by Barnhardt and Kawagley (1998) supports this conjecture, indicating that culturally relevant programming is having a positive effect both on school completion rates and achievement. Initial results also show an increase in the number of rural students attending college as well as an increase in the number of Native students choosing to pursue studies in fields of science, math and engineering.

While cultural and language resource materials like books may be scarce, particularly in smaller communities, there are ample human and natural resources available to educators. As they work on culturally based technology projects, students go beyond just using the materials, they become the creators of resource materials for themselves and their communities. The integration and use of multimedia technologies enables another level of learning and sharing to occur that we are only just beginning to appreciate.

The digital medium that these projects use provides us with an example of another literacy that can take various forms that include visuals, audio, and combinations thereof. It is a medium that encourages students to think, learn, and create in a myriad of ways. Use of digital technologies actually makes space for culture to be acknowledged, recognized, learned, practiced, preserved, revitalized, and shared. Relevance is determined by the learner. Education is undergoing a digital transformation.

At the same time, there is a movement heading towards assessment that is outcomes based and high stakes. Alternate methods of assessment, incorporating local

and cultural knowledge along with Western and Eurocentric knowledge that also includes multiple literacies, need to be developed.

Student technology projects of this nature open the doors for sharing and networking among students, communities, and nations. They enable cultures to maintain and preserve their cultural traditions while at the same time, allow for the shaping and carving of new and contemporary ones.

Recommendations

It is clear from the interview data that community members participating in this study are strongly supportive of the student technology projects produced and presented in their community. It is also evident that the success of these projects involved healthy communication and collaboration from many people in the community. It is apparent that to be seen as successful by community members, projects such as these should embrace respectful communications and relationships, include community participation, have school support, be built around hands-on activities and experiences, use contemporary technologies as tools, and focus on cultural practice.

Schools need to be supportive, providing leadership or rather, facilitation in these kinds of student technology projects and processes. Counseling on site has been suggested as one way that both treatment and prevention for various factors affecting student ability to succeed could be addressed. Education boards, school districts, health boards, and communities need to listen to community members concerns and find ways to act upon them. Similarly, they need to explore and open up avenues to continue these kinds of student technology projects within their communities.

Hands-on activities and experiences with culture and technology are vital to the success of these student technology projects. Many cultural practices have been lost or are only used by a few people, so it is no longer true that all community members know how to do them. Study participants strongly support the notion of gaining knowledge of these practices, so taking part and actively learning them is important. Students are highly motivated by learning experientially.

The use of technology as a tool and medium to engage students in connecting with their culture, their relationships, their community, and their world creates a way to blend traditional and contemporary skills, knowledge, and culture in exciting meaningful ways. The products of these processes enrich the resource database for the entire community by allowing more information and cultural knowledge to be shared. It also provides an avenue for cultural revitalization and renewal which participants in this study identified as a priority.

Given the strong evidence from this study in support of student technology projects with a cultural and community basis, we need to explore ways to integrate them into current educational practice on a larger scale. The following paragraphs include a few methodological recommendations for improving this study as well as for future work with other communities.

Initially, a total of twenty-five people were interviewed. For a variety of reasons, not all participants were able to attend the student presentation and some were unavailable for follow-up interviews. The intent of the post-project interview was to ensure that participants had seen the student technology project presentations and could speak from experience about them, not to find out about change (although this may have

occurred). Since most community members are now familiar with the types of technology projects the students have been producing, I think that one, perhaps longer interview following student presentations of their work would be adequate. It could include a combination of all the questions and perhaps show a sample of student work if necessary. This would provide continuity for the participants and allow for a smaller number of interviewees.

In reviewing general profiles of the participants, I found that there was little or no representation from under or unemployed community members, nor were there any students. Information from both of these groups would be useful in the light of what the findings revealed about educational priorities for the community (i.e. level of education, future job possibilities). A targeted focus group or survey (possibly perceived as less intimidating or easier) might bring in some of these members of the community.

The participants, particularly those that came to the initial findings presentation in December expressed a need for language immersion. When their concern was mentioned in a casual conversation with another person, I was told that parents in one of the other communities were not interested in immersion and that they just wanted their children to get through high school. This could indicate an issue regarding transferability of results. Can we say that these concerns are common to all of this First Nations communities or all other First Nations communities? In a general way, we can conclude that language loss, for example, is of concern to First Nations communities. What we cannot say is that we need to have language immersion schools in all communities. Each community needs to go through a process of prioritizing cultural, technological, and educational issues for themselves and make decisions based on local circumstances. While the government and

the school board of this nation both endorse the concept of language immersion, a wider survey throughout the land and perhaps including urban locals in larger centers would help determine the extent of the actual desire for this kind of programming. A pilot curriculum might be a way to start in one of the communities that have definitely made the decision to opt for language immersion. Student technology projects could then be done completely in the language and further complement the program.

Local communities may well become more involved in participatory action research (PAR) projects to determine and study what is of interest and value to them. Research by and with youth and under or unemployed community members would help identify their concerns. It could also serve as a forum for action if they choose. Guidelines for communities to adapt to their own circumstances when considering how to use technology for learning can be found in *Aboriginal digital opportunities: Addressing aboriginal learning needs through the use of technologies*(Greenall & Loizides, 2001). The A.N.K.N. (Alaska Native Knowledge Network, 1998b; 1999) has produced several booklets of guidelines for culturally responsive teaching and schools in Alaska that can be modified for use in other areas. Appendix B outlines a process that could guide the development of student technology projects such as those referred to in this study.

This inquiry has been and continues to be an involving study that has led everyone through an engaging and thought provoking process. While this paper is in some ways an exit, an ending and a conclusion of work, it is also an opening, a beginning and a start for research yet to be done. As one participant, Alf, says,

You gotta learn. Find means and ways how to protect yourself and what to do.

Conclusion

In this thesis, I have presented the responses of study participants to multimedia presentations by grade 6 and 7 students. The projects addressed some of the effects that a treaty has and will have on this nation. Community members expressed great satisfaction with the projects and they were seen to be compatible with their views about what is important in education. Incorporating technology into these community and culturally based projects was greeted with enthusiasm and perceived to be supporting and enhancing traditional culture, while at the same time embracing contemporary culture.

By using current and culturally relevant topics, a learning prototype for integrating technology into a First Nations community-generated curriculum could be developed (see Appendix B for an example of a way to develop technology projects that are community-based and involve hands-on active participation). Appropriate pre-service teacher training and in-service in culturally responsive processes and decolonizing methodologies would be useful for schools, school districts, colleges, and universities. Students in a fifth year education class for pre-service teachers at the University of Victoria were eager to create videos as part of a community development project this past year. They worked with community organizations of their choice to produce educational resources for that organization. The equipment they used is readily available and accessible in most schools and districts. Some of the students made use of the technologies in their practicums and others were already making plans for after they graduate. Teachers are enthusiastic about projects like these and are requesting assistance and training in this area. Collaborative work with the grade 4/5 classroom teacher in the village where I conducted this study resulted in the development of student web pages of

her class' work with cedar bark. Applying new tools of technology to collaboratively implement a new tradition of learning is a powerful and very real possibility.

As a curricular application, the findings of this research may have many implications for persistent social issues including literacy, technology, language, and culture. Other benefits for students involved in successfully completing technology projects like this include increased sense of self worth, pride, motivation, and desire to learn. Simply by participating in the project, student effort and work is validated by the whole community. One very important outcome of this project has been gained from the community perceptions, attitudes, and responses to the projects. These insights help shape and define how technologies can be used in culturally appropriate ways, specifically focusing on enhancing and strengthening the culture.

This research contributes to work in the area of decolonizing methodologies and postcolonial theory. Linda Smith (1999) talks about how the colonization of the Maori culture has made it extremely difficult for Maori forms of knowledge and learning to be accepted as legitimate, but concludes that Maori people have taken control over their research and put that knowledge alongside that of existing Western knowledge. In a similar vein, by exploring the effects of colonization on this First Nations culture, student projects along with community participation in those projects helps position their knowledge alongside Western knowledge.

Opportunities are and will continue to arise that will lead to networking and sharing with other students doing technology projects that should benefit other groups involved in similar projects focused on culture. A Hawaiian group has already given us their email address. Community participation in the process not only validates the project,

it also serves to provide a forum for local community action to take place. Increased

parental involvement in the formal education system is another benefit gained from this

kind of culturally based education initiative.

Abele, Dittburner, and Graham (2000) claim that there is a need to go beyond

grassroots efforts and in their essay on Aboriginal education policy, they write,

> Changes in thinking about education centred around the concept of self-
>
> government. The discourse on Aboriginal education no longer emphasizes local
>
> control over education or community-based change but, rather, looks to
>
> constitutional amendment as the best means of recognizing the inherent right of
>
> self-government and, hence, as the best way to achieve First Nations control over
>
> education. (p. 16)

This larger view is supported by Goddard and Foster's (2002) work that points to issues

of control and power imbalances between local communities and outside decision makers

of another culture. Their focus is more on school leadership and the role that

administrators play in northern Canadian schools. With reference to Inuit schooling,

Watt-Cloutier (2000) writes,

> ... The school systems that do not make true empowerment and independence the
>
> key themes of their programs are adding to the problem rather than solving it.
>
> ... The larger issues of healing, life skills, being in control of one's life and
>
> destiny, freedom and living with freedom must be dealt with in order to
>
> effectively begin the process of changing from dependence to independence. (pp
>
> 120-121)

Local, grassroots community efforts contribute to our ability to express ourselves and our cultures. They are integral to the process of change. It is vital that people of all cultures continue to work together to create educational systems which celebrate all student learning.

These student technology projects exemplify a Culturally Based Education program that was found to be effective in creating learning environments conducive to educating First Nations people in ways which they identify as important and that strengthen their culture. CHAT gives us a framework to analyze this kind of programming so that useful and appropriate pedagogy can be developed and implemented in our schools. It is important to recognize that by introducing a new technology (tool), community practices and social interactions will change, which in turn will influence psychological processes (i.e. cognition and values) (Rivera et al., 2002). This focus on social interactions incorporates the needs and abilities of individuals and communities so that local concerns and culture are integral to the development of each and every member of the community. How we as researchers, teachers, and community members respond and choose to use these tools requires careful consideration of the educational and learning goals we have in order to maximize the developmental potential of our children.

The research has been a fun, rewarding, collaborative learning experience that involved many members of the community. Everyone has had the opportunity to share many aspects of our collective lives that we think are important about our futures and

ourselves. I hope that my findings will prove a strong addition to the relatively small body of work by pioneers in this field.

The totem pole starts off as an idea, an image and a story, several images with several stories. It is painstakingly carved and raised for all to see. Celebrations follow with feasting and speeches. People go home. The pole remains.

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Appendices

Appendix A: Interview Questions

Guiding questions for initial interviews:

- What is important in education?

- What do you think the purpose of education is? Should be?

- What role do you see the Nisga'a language taking in daily life and education today?

- What is culture? What are the main things that identify your culture to you?

- What do you want your children and grandchildren to know about you? About your culture?

- How do you let them know those things?

- How would you like them to learn about these things?

- What are other ways they might learn these things?

- What are some of the community resources available for this?

- I would be interested in knowing about how you feel about your language and culture.

Guiding questions for post project interviews

- What do you think of the technology projects (can be specific once the projects have been produced) the students presented?

- How were you involved in the process?

- In what ways do you think the use of technology influenced students' learning and understanding of the treaty?

- What benefits do you see coming out of the project? For the students? For the community?

- What problems do you see coming out of the project? For the students? For the community.

- How do projects like this support the traditional and contemporary customs, laws, and practices of the Nisga'a?

- Do the student technology projects contribute to community resources and knowledge? How or how not?

- Now that the students have presented their findings, can you think of other uses for these projects?

- Do you have any suggestions for future projects?

Appendix B: A Process

This section summarizes a process that could be used to facilitate the types of practices leading to community based cultural projects such as those experienced by the group of people in this paper. It takes us from finding out that the community is extremely supportive of these kinds of student technology projects as a means of working towards and attaining the educational goals they identify for their children, to some more practical suggestions on how to set up and implement them. It is followed by some discussion of cultural, community, educational, and technology issues to consider.

While the process of developing and carrying out student technology projects is quite circular with elements that spiral around and around, I will attempt to lay it out linearly. Like the totem pole, there is more depth and detail than initially meets the eye. Hopefully, the outline will provide enough clarity to be of assistance in initiating student and community generated, culturally based student technology projects.

A beginning

- Start with students and community members

- Ask questions

    o What do you want to learn about?

    o What do you want your children to learn about?

    o What are you interested in?

- Listen

- Encourage, involve, include

- Review growth plans (school, community), brainstorm with different groups (students, parents (Parent Advisory Council, Parent's Club), teachers, Elders, school trustees)

- Consensus on a few

- Ask for input

- Listen

The treaty project came from a request during the first year of the totem pole carving project. As we watched the students working away in the carving shed, the community economic development officer asked if I could do something like this on a First Nation's treaty. He felt that people really didn't know much about it and needed to start learning. My initial response was mixed. Yes, we could do something interesting around the treaty, along with, what, me? What do I know about the treaty? However, it is my firm belief that it is the process that is important. As long as we involve resource people and Elders that know about and are willing to share their knowledge about the issue, we can do a project. This idea differed from the totem one in that the topic of interest came from a community member rather than the students and I wasn't too sure on the angle I might take with the students. So I agreed to look into the suggestion and asked about resource people.

Some next steps in developing a project

- Local area experts

- Community person in charge of community events, resources, protocols

    o Value and appreciate them

- o Defer to them

- Flexible and open to change

- Scope of project

    - o Check in with administration, staff members

    - o Opportunities for collaboration (other grades, schools, districts, www)

    - o Flexible and open

        - ▪ Add-ons (e.g. a visit to another school to show and share your projects with students there)

- Logistics and timing

    - o How long do you have to learn about and research the topic?

    - o What is the timeframe for the activity itself?

    - o What other skills will need to be taught or learned before the project can be completed successfully (e.g. basic research skills, interviewing techniques, using a camera)?

    - o Are there seasonal considerations for the project?

    - o How will you go about documenting and/or creating the technology piece of the project and what is the timeframe for that?

    - o What will the technology piece be? Plan it out!

    - o What resources will be needed (e.g. equipment, technical expertise) and when?

- Plan enough and extra time

- Expect the unexpected

I spoke to a few people in both the local village government and regional

aboriginal government, looked through a variety of curriculum materials on aboriginal

governance, and started collecting resources as well as my thoughts about how this

particular project might come together. A summer Information and Communications

Technologies (ICT) (or was it Integrating Computer Technologies (ICT)?) institute

proved to be a good place to focus on what the big question(s) might be as well as some

options in terms of integrating technology. By this time, I knew that the hooks would be

using the technology and talking with Elders. The administration was very supportive,

village and regional governments were enthusiastic, and so were local community

members.

This project was a couple of years in the making, but it does not need to take so

long. Some of our funding fell through so we decided to move it to the following year to

allow time to find adequate funding. Another option would have been to do the project on

a much smaller scale.

In terms of the form of the technology project itself, my students were interested

in doing a variety of things. Some had used PowerPoint for a project on Egypt the year

before and thought that they might like to do that style of presentation. One group was

adamant that they produce a video. Although all the interviews (excepting one that was

audiotaped) were videotaped, the other groups chose to create posters and comic strips

from the information they had gathered. They put these together in a slideshow. One girl

only wanted to write an essay, which she did. Her narration was recorded and she created

a slide show of photographs to go with it. I had both personal experience and technical

assistants to help teach and work with students. Even if you do not have much

experience, use community, school, and district resource people to make it happen (allow

for lots of time). The students themselves are also great resource people.

How do I involve everyone?

- Tell and involve everyone

- Keep them informed in a variety of ways (talk, newsletter, CB radio,

  announcements at meetings.)

- Ask for volunteers

  o Be specific about needs

- Be flexible and open

- Community resource people

  o Availability

  o Willingness to:

    ▪ Come to class, present

    ▪ Be interviewed

    ▪ Allow group or class to visit

- What materials, equipment, and supplies will be necessary to participate in

  cultural practices and to put the project together?

- Are there some places to visit or field trips to go on that will enhance the

  project?

- What guest speakers or presenters are available to speak with students and

  community members on the topic(s)?

- Get help from your community liaison.

- Check in and follow-up with administration and community

- Ongoing help from community members

- Facilitate the process

- Be flexible and open

Sharing the stories AND?

- Community presentation and celebration – must do this – practice on other classes if you (or your students) need to

- Thanks, acknowledgements, gifts (fundraising, funding)

- Work with students to plan the event with community help/support – get cultural advice for protocols etc.

- Ask for help

- Keep administration and other staff members in the loop (blackboard notice, CB, staff meetings) regularly

THE END ?

- Follow-up with students, assessment

- What next?

  o Future uses of projects, ideas,

  o Packaging of project(s) for students, community, school district, others?

  o Outreach (trips, sharing, www, school and conference presentations)

- Thank you – letters and copy of project(s) to funders, school district, administration, community liaison

There are a variety of issues that arise in the course of developing and implementing these kinds of community and culturally based student technology projects. Four areas to consider include culture, education and schooling, technology, and funding.

Cultural issues.

- Protocol
    - o Ask
    - o Check
    - o Clarify
- Process
    - o Ask
    - o Define
    - o Check
    - o Clarify
- Gifts, honorariums, thanks
- Communications
    - o Ask
    - o Keep everyone in the loop (CB, newsletter, bulletin, community calendar)
    - o Check
- Open and flexible – expect your detailed plans to be changed at the last minute –
    - o You may be asked to make a speech at the last minute
    - o Take students to perform and present at some event tomorrow
    - o Help out with... you name it, it could happen!
- Keep a sense of humour

- If it is safe, by all means, go for it!

- Be sure to write it up in your log book, have students take pictures, get video – who knows what new project might develop out of it?

Educational issues.

If you are a control freak, this kind of project is not for you. Close this file.

Still here? Great. Obviously, you need to be quite flexible in the planning for these kinds

of projects.

- Curriculum

  o Learning outcomes and Integrated Resource Package's (IRP) – work

     within the system

- Administration

  o Check with them about how much they need or would like to know and

     how often they want to be notified – put in writing and keep copies

  o Use staff meeting to keep people up to date

- Teachers

- Support staff

- Parents, community members – communication

- Student advocate – that's you!

Technological issues.

- Hardware

- Software

- Technical support

- Funding

- Presentation equipment, space, availability

- Project packaging – CD Rom, DVD, website

Funding issues.

- Budget

    o Include community person and administration in process

    o Cultural protocols (e.g. gifts and tokens of appreciation for Elders as well as invitations, sharing.)

- Identify sources of funding

    o School, district, region, province

    o Include student fundraising

    o Grants from schools, unions, federations, school organizations, technology

    o Local businesses

- Get commitment

Have fun and enjoy the process!

Appendix C: Certificate of Approval

University
of Victoria

University of Victoria - Human Research Ethics Committee

Certificate of Approval

Principal Investigator	Department/School	Supervisor
Tish Scott	EDCD	Dr. Eliza Churchill
Graduate Student		

Co-Investigator(s):

Title: **How First Nations student technology projects influence the community**

Project No.	Approval Date	Start Date	End Date
138-03	01-May-03	01-May-03	30-Apr-04

Certification

This is to certify that the University of Victoria Ethics Review Committee on Research and
other Activities Involving Human Subjects has examined the research proposal and
concludes that, in all respects, the proposed research meets appropriate standards of ethics
as outlined by the University of Victoria Research Regulations Involving Human Subjects.

J. Howard Brunt
Associate Vice-President, Research

This Certificate of Approval is valid for the above term provided there is no change in the
procedures. Extensions/minor amendments may be granted upon receipt of " Request for
Continuing Review or Amendment of an Approved Project" form.

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138-03 Scott, Tish

Appendix D: Participant Recruitment Poster

What Works?

Your ideas and opinions about what works to help our children and ourselves learn are WANTED!

Tish Scott, local teacher, is currently researching the influence of student technology projects on the community.

Your input will aid this community by defining what you believe to be important in education. This, in turn, will help educational and governmental leaders with programming and funding decisions for all our present and future learners.

To VOLUNTEER to be interviewed for this research project, please contact Tish at 326-4233.

Appendix E: Student Technology Projects Sample CD