COMPUTER-MEDIATED COMMUNICATION IN NUNAVUT

by

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ABSTRACT

Academic study of communication in Canadian Inuit communities has focused on the introduction of successive waves of communication media such as print, radio and television. One of the reasons for this scholarly interest may be that issues of culture, language and self-determination are more readily apparent in a context that is isolated from the rest of the country and yet in constant contact with the dominant culture.

As Inuit prepare for the creation of their new Canadian territory of Nunavut in April, 1999, they must address the desired role of information technology and the development of a more modern communication infrastructure. Computer-mediated communication is expected to play an important part in compensating for remoteness and isolation. While there has not yet been extensive academic study of computers in the North, there has been much discussion and enthusiastic conjecture about their utility.

This thesis proposes that an appraisal of the potential of information technology in Nunavut requires an analysis of the computer as a material commodity and as a tool for the furtherance of goals of community development, cultural perpetuation and identity formation. Integrating theory and application in a policy research approach, it elaborates on issues that are already being debated by Nunavumiut. It seeks to deflate widely propagated expectations of technology and to frame new challenges in light of Inuit political and communication achievements. Finally, it recommends a regional policy shift in order to incorporate a contextual, cultural understanding as part of computer training. This adaptive policy would be supported by the familiar mechanisms of community activism and pan-Nunavut leadership.

DEDICATION

This thesis is dedicated to my husband, James Derek Forbes and to my father, Dr. John W. Martens. I thank them for their support and for sharing my love of the North.

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I would like to thank my co-supervisors Catherine Murray and Ellen Balka for providing the constancy and flexibility necessary for me to make several transitions between work and school, between provinces, between the Aboriginal Relations Office in Ottawa and the Federal Treaty Negotiation Office in Victoria – without losing sight of the personal significance of this project.

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CHAPTER 1:

INTRODUCTION

Emergence of Nunavut and the Role of Information Technology

In recent years, Canada has attempted to acknowledge and amend an historically poor relationship with its Aboriginal peoples. The disadvantaged socio-economic status of Aboriginal Canadians, combined with protests in the form of civil disobedience, has brought long unresolved conflicts and injustices into the public light. Increasingly, public policy supports initiatives that restore some of the authority and independence that Aboriginal peoples once enjoyed as sovereign nations.

In April 1999, as a result of the settlement of their comprehensive claim, northern Canadian Inuit will become the majority population of the new territory of Nunavut in what is now the eastern Northwest Territories. The tremendous accomplishment of Inuit in fighting to reclaim control over their traditional territory – even to the point of altering the geo-political face of Canada – is only the first of many challenges they aim to address through self-determination.

Computer-mediated communication is generally seen as supporting a large number of developmental goals in Nunavut. An extensively decentralized administrative structure will characterize the new government; its efficient operation hinges on sharing information electronically. The dispersion of administrative functions is designed to prevent the concentration of economic benefits in a single locale when there are relatively few sources of employment in the North.

Computers are also expected to stimulate economic development through an array

of new opportunities for marketing, professional collaboration, access to financial data and stock markets. Furthermore, computers are thought to offer avenues to educational enhancement that will ultimately benefit government and economy alike. In short, the information highway has been touted as substituting for roads that never existed, linking dispersed, remote communities and providing all with greater access to services and information. Consequently, the ramifications of information technology have been the subject of considerable discussion and policy debate.

An undercurrent of this debate flows from lessons learned with previous media. Computers once again are confronting Inuit culture with another wave of communication technology which beckons to be exploited while it threatens to assimilate. Accepting the offer of unprecedented connectivity means welcoming the outside world however consciously or unconsciously.

Aim and Contributions of the Thesis

This thesis seeks to make a contribution on the side of the conscious and critical adoption of communication technology. In so doing, I will draw on the frequently sceptical analyses of social theorists as a counterweight to the uncritical enthusiasm of proponents of information technology. I will honour the cautions of development theorists while rejecting the paternalistic notion that indigenous peoples should avoid availing themselves of the tools they believe appropriate to the achievement of their aims. To do so would be to deny the innovation and creative exploitation of technology that have always characterized Inuit society.

The pages that follow might be thought of as extensive footnotes to issues raised

by Nunavumiut in various fora such as policy documents, community debates, newspaper and other media. Drawing on these works gives greater authority to the theoretical analysis, while avoiding the tendency of speaking for others. For example, the international Inuit organization has recommended that

> new communications and information technologies should be assessed for their potential benefits and adverse effects in an Arctic context. The Arctic policy should determine what social and ethical policies may be required in order to effectively regulate these new technologies (Inuit Circumpolar Conference, c. 1988, pp. 109-110).

The Nunavut Implementation Commission which is charged with advising on the establishment of the new government concurs that "a more comprehensive and sophisticated understanding of technology and its capabilities has to be instilled in the general population" (Nunavut Implementation Commission, 1996a, p. 5). Northerners themselves have identified the need to "raise the awareness of Inuit and other Northerners about the concept, vocabulary, and potential of current communication and data transfer technology" (Inuit Broadcasting Corporation, 1995, pp. 6-7).

Indeed, when the apparent inevitability of infiltration by computers and the unconditional support shown by political and regulatory institutions (Menzies, 1996) does not foster debate, it is incumbent upon users and would-be users to independently assess the significance of new technologies (Masterman, 1985; Unesco, 1980). This thesis makes several unique contributions to this evaluative process in that it considers a medium not prevalent in the academic literature and does so in the emerging context of Nunavut and of *de facto* Inuit self-government.

Method and Structure

Given the currency of the subject matter, the initial approach was exploratory research of a wide range of sources prior to the development of an hypothesis for further study. The resulting work has been strongly influenced by a public policy analysis approach (Pal, 1987), particularly in its concern with human or social aspects of the information technology question, as opposed to the more technical considerations.

However, the facts which make this area of study so compelling also complicate the clear assignation of methodological labels. Just as Nunavut has been referred to as a proto-province within Canada (Cameron and White, 1995), so too can the current policy development be considered proto-policy. It is difficult to speak in conventional terms of evaluative analyses when no official policy exists to date. The rubric of policy research, with its emphasis on fundamental social problems and action-oriented recommendations (Majchrzak, 1984) is perhaps the most appropriate.

A combination of current policy material and journalistic commentary (primary literature review) will be used alongside a secondary literature review that incorporates the philosophy of technology, communication, sociology and development theory. Information theory pertains, but not as extensively as one might expect. It seems that much writing about information technology remains at the level of insightful description, often supported by anecdotal evidence, but that it has not yet condensed under the weight of time and discourse to form substantive theory.

In chapter two, I provide an update to previous histories in terms of the geo-political and social evolution of Nunavut, the role of technology in Inuit society, and the

social history of communication in the North. Socio-economic factors as well as the current status of the telecommunication infrastructure will be detailed, including the historic difficulties of interconnection and the many social realities that might be influenced by an improved pan-northern communication network.

The role of technology historically and contemporarily will be shown to be pivotal to the physical and cultural survival of the Inuit. Works from the archeological and anthropological disciplines will be used for the historic portion. Description of modern-day communities is largely based on personal observation. I will extend the social history of communication to include the medium of computers which is generally where the established trail of academic study leaves off. In fact, one of the more recent works (Koebberling, 1989) alludes in conclusion to the fact that "computers have begun to diffuse through the North. Yet there is no research that analyzes potentials and actual experiences" (p. 434).

In the interim, communication technology has developed with incredible rapidity. Behind this industry are strongly motivated, dynamic political and economic forces that greatly shape the technology before it ever reaches the endpoint of the production process which is the consumer. Entwined as information technology is with human expression and social relations, it is sometimes hard to perceive as a material thing which is bought by those who can afford it and sold by those who wish to profit from it. Consequently, the roles of government and industry must be studied in order to appreciate the complex interplay of motives which determines the ways in which information technology is made available for our consumption.

Chapter three describes the current status of the information highway in the North and the efforts of several Northern organizations to influence its development. It will be shown that the rationale for the treatment of information (and therefore information technology) as a commodity is captured in a prevailing public rhetoric which seems unanimous at both the regional and national levels. At the regional level, I will demonstrate a primary focus on the economic possibilities of information technology and the anticipation of resolving entrenched problems such as unemployment and isolation. At the national level, using primarily Canadian theorists, I will show how their critiques are borne out in current policy documents. Finally, as a bridge to the following discussion of community and community development, I will compare the values underlying the process of commodification with the values of the collectivity espoused by Inuit.

Chapter four considers the various ways in which computers are conceived of as tools for community development, cultural perpetuation and identity formation. I will show how these ideas are nested, one within the other, and that within each nest there are specific implications for computer-mediated communication. The notion of community is frequently invoked by theorists in pointing to the new bonds that may be formed via computers, or conversely to the existing human bonds that may be weakened or destroyed if social energy is expended on those far away instead of those in our immediate, geographical communities. What does computer-mediated communication mean for community where that term is not esoteric but has strong cultural, political, historical and geographical significance? Theorists' differing ideas about communication and social commitment determine whether computers are seen as binding or as alienating.

One often encounters the concept of reproduction of community and generally, as in development theory, it is linked with the perpetuation of specific cultural values (Appadurai, 1990). The discussion of community development will flow into the question of cultural perpetuation, which in turn will permit an assessment of identity formation at the level of the individual.

The term culture encompasses many aspects of an indigenous lifestyle that include language, learning in traditional ways, cultural heritage and artifacts – in other words, the collected panoply of characteristics that define a people as unique. The concern in this chapter is not with any specific aspect of culture, but rather with the issue of whether computers can strengthen a people's ability to define who they are and express these findings among themselves and to others. Computer-mediated communication may in fact undermine a people's freedom to be different by forcing them to use certain tools, certain modes and certain languages if they wish to participate in wider communications fora. Certain ways of thinking will be shown to be potentially in conflict with ways of thinking that are on some levels encouraged by computer use.

At the level of the individual, computers are thought to challenge generally accepted social practice by stimulating experimentation with presented, alternate, and even parallel identities (Stone, 1995; Turkle, 1995). The fourth chapter will draw on psychological insights and some postmodern theory to reflect on the relationship of personal expression to identity formation. It addresses the interplay of culture with notions of authenticity and identity that are challenged by new modes of interactivity.

The concluding chapter will take a step back to look at the overarching question of

the presence and awareness of technology. Some kind of global understanding of the phenomenon is necessary for an holistic understanding of how a technology functions in a particular context. I will consider the philosophical theme of human awareness of our relationship with technology, particularly with respect to theorists' concern with its visibility or lack thereof.

A consciousness of, and close relationship with technology was historically fundamental to Inuit survival in the North. Even today, the human scale of northern communities prevents envelopment by a technological infrastructure. In an environment where huge satellite dishes may be the most striking feature of a small, low-lying community it is not surprising that there has traditionally been such an interest and concern about the presence of communication technology. This is a great advantage for the continuing struggle to come to terms with new technology.

Much has been made of the possibility for Inuit to bypass various stages of economic development directly into the information age. In anticipation of a region-wide conference on the Future of Work in Nunavut (March, 1997) one observer opined that "since Nunavut doesn't have a highly-industrialized economy or workforce, people here may be able to skip the industrial era and jump right to the knowledge-based industries" (Phillips, 1997a, p. E5). There is no reason to doubt this potential. As we have seen, Inuit resourcefulness and innovation are legendary. Computers may transform the way people in Nunavut access education, health, employment opportunities and participate in politics. But there are a host of on-going, serious socio-economic issues which condition the use of information technology and in some cases may prevent its use.

In the excitement over the apparent newness of computer-mediated communication, an important critical perspective can be lost if one ignores the human, social element, the history of previous communication media and the practical barriers to access which can only be overcome through policy, technical infrastructure and appropriate training. Training should extend beyond the ability to operate software programs to incorporate a conceptual awareness of information technology that is informed by lessons learned from past media. The question of how to achieve greater awareness of the nature and potential of information technology will run throughout the entire thesis.

CHAPTER 2:

CONTEXT

The concern of this thesis is with information technology in the northern Canadian context of Nunavut. Nunavut has a majority Inuit population which will effectively achieve self-government when Nunavut breaks off from the Northwest Territories to form its own public government in April of 1999. The Inuit goal of self-determination has been manifest through tangible changes to both political and communications realities of the North.

A rapid and often difficult adjustment to the modernizing influence of Euro-Canadian society fostered an Inuit tradition of policy development that has continued. The work of organizations such as the Inuit Broadcasting Corporation (IBC), the Nunavut Implementation Commission (NIC) and Pauktuutit (an Inuit women's association) permits a more authoritative look at the circumstances that will condition the adoption of computers in Nunavut. Linking these realities back to theory brings certain unique aspects into sharper relief while connecting the Northern context to wider insights about information technology.

In this chapter, I will attempt to describe the path of Inuit self-determination starting from the pre-contact period of Inuit independence. I will briefly document some of the statistical realities of life in Inuit communities before undertaking a discussion of the historic and contemporary place of technology in the North and an outline of the social history of communication technologies. The latter will be brought up to date with a consideration of all of the activity currently surrounding the amelioration of an inadequate

communication infrastructure and the push for computerization.

Inuit communities, like those of all Canadian Aboriginal peoples, are striving to regain their historic practice of self-determination. Prior to European contact, Inuit had their own systems for decision-making and a culturally distinct approach to community authority (consensual, egalitarian) which operated in the absence of formal social or political organization (Brody, 1987). Subsistence created its own laws and absolute values through necessity, not through an abstract process of derivation (Balicki, 1970). While Inuit depended completely on their immediate family and members of their camp, they were largely independent of others.

The infiltration of traders, missionaries and police altered the locus of power as relations of dependence were formed on whites and Southern goods. In the 1950s and 60s, a nomadic way of life was surrendered for settlement in permanent communities to facilitate the job of administrators and to allow for the formal education of children. It was at this time that Inuit began to experience the problems associated with internal colonialism (Frideres, 1993) and subjugation. Control over all aspects of life from the basic provision of food to the spiritual exercise of faith was assumed by outside authorities. Not surprisingly, Inuit did not thrive under conditions that were foreign to them and to the realities of the North (Brody, 1975, 1987; Creery, 1994; Duffy, 1988).

Socio-economic problems that developed at this time have been persistent. For many Inuit as for many Canadian Aboriginal peoples, there are few prospects for employment, low levels of education and literacy, inadequate and insufficient housing – conditions that have frequently invited comparison with developing countries (Harper in

Hylton, 1994; Tepperman and Rosenberg, 1991, p. 171).

At the current time, Nunavut depends upon federal transfers for 95% of its revenues.[1] Social assistance payments have reached close to $20 million dollars per year. The real unemployment rate is on average 30%, but ranges to 40% and higher in some communities. This is three to four times that of the national average. More than 95% of the unemployed persons in Nunavut are Aboriginal.

There is some economic potential in natural resources (e.g. rich mining deposits) but the cost and difficulty of extraction has meant that these remain only potential resources. The fields of recreational tourism (e.g. hunting, fishing) and eco-tourism are promising but practical mainly during the short summer season. Government jobs and associated activity are considered to be a significant source of economic stimulation, providing job opportunities on a region-wide scale.

However, given the low levels of education and literacy found in Inuit communities, a great deal of training will be necessary to bridge the gap. While the new government will create job opportunities, very few Inuit who will be unemployed and looking for work in 1999 will have a high school or post-secondary education. Almost half of the adult population (46.6%) has fewer than nine years of formal schooling and the number with university degrees is too small to register statistically (Royal Commission on Aboriginal Peoples [RCAP], 1996, Vol. 4, p. 966).

A further challenge to self-determination is found in home environments which are frequently compromised by social ills resulting from traumatic adjustments to

[1] All statistics in this paragraph are from Nunavut Implementation Commission, 1995a, p. 61.

modernization and Southern culture. Substance and alcohol abuse, domestic violence, child neglect and abuse, and suicide are real problems that Inuit are working to overcome. The rate of suicide among Aboriginal people in Canada is two to three times higher than among non-Aboriginal people and the rate is highest among Inuit (RCAP, 1995, p. 1). The Royal Commission on Aboriginal Peoples studied this issue and drew a parallel between the experiences of Aboriginal peoples and those of war victims, noting that both have experienced:

- loss of land, loss of control over living conditions and restricted economic opportunity;
- suppression of belief systems and spirituality;
- weakening of social institutions;
- displacement of political institutions;
- pervasive breakdown of cultural rules and values and diminished self-esteem;
- discrimination and institutional racism and their internalized effects; and
- voluntary or involuntary adoption of elements of an external culture and loss of identity (RCAP, 1995, p. 1).

Nonetheless, those qualities of perseverance and innovation that traditionally sustained Inuit society have continued to serve in good stead. Faced with perceived threats to the continuance of their cultural autonomy, Inuit adopted processes for change that would both achieve their objectives and be understandable and acceptable in the larger policy arenas of the South, federal government and regulatory bodies (Moss, 1995; Murray, 1983; Roth, 1982). This process was historically one of a growing awareness of problems or conflicts, followed by the development of policies to offset perceived negative influences, and subsequent lobbying.

While the manifestations of self-determination may vary, all have been focused upon the perpetuation of Inuit communities as culturally and politically viable entities and

upon the control of land and resources that historically were home to the Inuit. More than twenty years of negotiation begun by the Inuit Tapirisat of Canada in 1976 finally led to the passage of the Nunavut Land Claims Agreement Act and then the Nunavut Act in June, 1993. Along the way to this achievement, Inuit organizations made use of research studies, plebiscites and several iterations of land claim proposals. The use of plebiscites is notable as a preferred method. Successive plebiscites were held to determine: whether there was support for division of the Northwest Territories; whether there was support for the proposed boundary; which location was favoured as the capital; and whether there was broad public support for the concept of twinned or gender-paired constituencies. Cameron and White (1995) who have noted the high participation in plebiscites and the preference for direct participation suggest it stems from a traditional reluctance to speak for others that is also felt by elected representatives.

> Aboriginal styles of governance emphasize keeping government close to the people and maximizing popular participation in political decision making. Accordingly, Aboriginal self-government is by its very nature community-centred (Cameron and White, 1995, p. 59).

No discussion of politics in the North would be complete without an acknowledgement of the integral role of communications. Political mobilization has been supported by improved communication just as it has been a vehicle for same. As Roth found in her study (1991) of the coverage of election issues in the North preceding the 1988 federal election, the fundamental communication issues of language, literacy, and appropriate media vehicles are most pertinent to accessing information in support of the exercise of democracy.

In a subsequent section, I will provide a unified timeline that links the social

history of communication to the political development of the North (also summarized in the Appendix). This timeline will benefit greatly from the previous work of scholars such as Roth (1982) and Roth and Valaskakis (1989). However, I wish to contextualize that discussion by an emphasis on the particular technology in question. Therefore, having provided an introduction to the general social and political context of Nunavut above, I will now present a general overview of the presence and role of technology in Inuit society in order to situate computers within the wider technological environment.

Historic and Modern Role of Technology

An historical perspective of the role of technology in Inuit society shows a remarkable technological complex that grew from a paucity of available resources - snow, skin, bone and stone (Balicki, 1970). The whole array of Inuit tools from hunting complexes (spears, harpoons) to transportation (sleds, runners), to construction (*pana* knives), to clothing (*ulus,* bone needles) and heating (whale oil lamps) is renowned for its ingenuity. It is not fortuitous that the Royal Commission on Aboriginal Peoples chose to devote an entire section to a discussion of "Inuit innovation" (RCAP, 1996, Vol. 1, pp. 78-86).

> Technological gadgetry that was a feature of later Eskimo cultures - the elaboration of a technology more complex than that of any other pre-industrial culture... allowed not only an economically efficient but also a comfortable way of life throughout arctic North America (McGhee, 1990, pp. 78-79).

All tools were valued greatly, due to their importance for survival and the difficulty of replacing them. Each had a specific purpose, often for gender-specific tasks, and no more tools were developed than were necessary. Historic Inuit carvings such as

toys or shamanic objects were generally small so as to be readily portable; they were nothing like the large and even monolithic works associated with Inuit carvings today (Graburn, 1983; Martijn, 1968).

A nomadic lifestyle worked to further pare down the technological complex to the most ingenious and indispensable items (Crowe, 1986). Whole societal changes are attributed to minor adaptations such as the toggle harpoon which permitted hunting of marine animals on the water instead of from airholes in the ice. Historically then, technology had perhaps the primary role in ensuring the perpetuation of Inuit peoples and in respect of this importance, tools were prized, well-cared for and prominent both literally and figuratively.

Consider for example the archaeological sites from which arctic prehistory has been reconstructed. Precisely because the surrounding environment was entirely natural and completely austere, the products of human making are very evident. Four thousand year old firepits – made of nothing but a few stone slabs roughly arranged in a square – still stand out as evidence of human occupation. As McGhee (1990) notes, these sites have not been excavated, they simply remain where their creators left them. The materials (as in the case of sod houses supported by whale bone) may have been natural, but their configuration and conscious employment in architectural design marks them as a human technology.

Technology continues to play a critical role as Inuit adopt technologies which they believe to be useful or desirable. Although minimalism is no longer mandatory with the passing of the nomadic lifestyle, other forces have combined for much the same effect.

Remoteness, climate and economic poverty have prevented northern communities from reaching anything like an encompassing artificial and technological environment.

The physical infrastructures of modern society that feature highways, overpasses and cement roads, all running over concealed tributaries of water, wires, and waste do not exist in the dispersed communities that make up Nunavut. Where there are roads, they are not paved and do not lead far. Although vehicles abound, they are generally not a necessity for transportation, given the small distances. Buses and trains are absent. Planes are absolutely essential, but they are not confined to a traffic corridor on the outskirts; rather they regularly, visibly and audibly arrive and depart – often right in the middle of town. Unlike in the South where cables, wires and pipes are often hidden underground to form a seamless invisible web of services, these same may run through above-ground "utilidors" to circumvent the damage of permafrost. For the same reason, buildings are elevated above ground.

Old and broken technology does not conveniently disappear the way it does in the South. Degradation processes are very slow and all forms of transportation are expensive. Therefore, things that are transported North tend to stay there (old, abandoned military sites of the Defense Early Warning system are a notorious example). A daily walk might lead by the dump site of old military equipment, rusting machinery, crashed plane fuselages and other miscellanea.

Another way in which the awareness of technology's presence is heightened in the North is its paramountcy for survival. For example, communication, diagnostic and transportation technology are all essential to the provision of health services where there is

only one regional hospital in a vast territory. Similarly, radio or cellular phone may be the only link between hunters and travellers on the land and other hunting parties or home communities; when they become lost or stranded, shortwave supports search and rescue.

The introduction of technology to the North has been abrupt, not gradual. It does not take its place innocuously. Rather, the effects of the introduction of a new technology are often widely observed and discussed, leading to a heightened overall awareness of technology as well as to vital debate about future directions. Historic examples include changed relationships with the land and its animals when new technologies for hunting were introduced such as snow machines and guns. In a recent reintroduction of the whale hunt, the question of appropriate use of new technologies such as underwater sonar and high-powered weapons received considerable attention ("Technology and the traditional hunt," 1996).

In conclusion, technology has had a remarkably prominent role in the survival and development of Inuit and their ancestors in an extreme Arctic environment. While technology is essential, climate and distance have prevented the development of an extensive and naturalized technological infrastructure in northern communities. Instead, the alteration of social patterns that can accompany technological change has been very much remarked upon by leaders and community members.

Communication technology is no exception and the stories of the effects of different communication media are still recent and remembered history. The next section is dedicated to tracing the history of communication in the North as described in successive scholarly accounts. This chronology moves from a pure focus on the

challenges of access to a more sophisticated account that relates communication undertakings to cultural self-awareness and active resistance to inundation by outside influences.

Social History of Communication Technology

In early accounts of communication technology in the North, it was the technological infrastructure that was most important to observers. The perceived need for military defense of the northern flank of the continent was a major impetus for the connection of isolated posts, an undertaking which was frustrated by factors of distance, remoteness and climate. In a 1964 paper presented to the Third National Northern Development Conference, the author never mentions the existence of Aboriginal people or communities (Ford, 1971).

Later accounts (Roth, 1982; Valaskakis, 1989) recognized the significance of Inuit interaction with technology as the most striking communication issue. The introduction of radio and television to the North brought a flood of foreign cultural influences; however, changed relationships had already noticeable with the introduction of print.

In an environment which had been exclusively oral, relying on the portable and efficient economies of song and stories for the preservation of shared knowledge and values, any technology which deviated from orality was sure to be intrusive and very visible both literally and figuratively. Print was the first foreign communication medium to be introduced to the Arctic; it created a major, disruptive shift resulting in a loss of power for Inuit. "As oral tradition weakened, syllabic print reinforced by Kabloona [i.e. white] authority and contact agency effectively broke Eskimo continuity in time

which was the basis of traditional culture" (Valaskakis, 1979, p. 130).

Without an external, third-party body of literature of various kinds (rules, stories, instructions), Inuit had always relied on the authority of their elders and on the knowledge that was shared with them directly and successively over the generations. The introduction of print created a static and material knowledge base for primary reference, which challenged the supremacy of memory and verbal expression.

Radio, the first form of telecommunication to be widely used across the Arctic, was also introduced as a tool for the white population, specifically the Royal Canadian Mounted Police. Valaskakis describes the role of radio in "the centralization of secular authority," (1979, p. 195) noting the fundamental social impact of communication technology even before its use by the northern Aboriginal population. By 1972, twelve years after broadcasting began in Inuktitut, less than 17% of shortwave service was in that language (Roth and Valaskakis, 1989, p. 223).

Given the disparity between the English/Inuktitut levels of content, it is not surprising that negative effects akin to culture shock were experienced by northern audiences. Rosemarie Kuptana who has been active both with the Inuit Broadcasting Corporation and as a former president of the Inuit Tapirisat of Canada, has often been quoted in her observation that southern television resembled a "neutron bomb" in its impact on northern communities in that it destroyed people but left buildings standing (RCAP, 1996, Volume 3, p. 625).

Community members such as Annie Okalik (1990) witnessed the transition and remarked that undesirable social behaviours had, in their perception, increased since the

introduction of television. As Roth has noted (1982), these changes cannot be exclusively attributed to television; however, it is clear that the predominant Southern concerns portrayed and the broadcast language of English directly confronted the value systems traditionally providing cultural cohesion in Inuit society. Initially, Inuit were powerless to resist this infiltration but they quickly learned to join in on the policy development process in order to defend their cultural priorities.

Historically, the lack of official government policy on Aboriginal communication or Aboriginal culture was a reflection of the assumed eventual assimilation of Aboriginal groups into mainstream society. In 1969, this assumption became explicit in the Trudeau government's proposal to legally remove any distinction of Aboriginal peoples within the general Canadian population. Consequently, Aboriginal groups became strongly motivated against a common threat (Cameron and White, 1995; Duffy, 1988).

The same year, the Telesat Canada Bill was introduced, proposing a satellite system that would among other things broadcast television signals to the North (Roth and Valaskakis, 1989). From this time forward, political and communication developments continued in lockstep, as shown in a brief chronology in the Appendix.

By the early 1970s, Aboriginal lobby groups were formed to fight for recognition of their prior occupancy, prior sovereignty, treaties, self-determination and preservation of minority culture (Macklem, 1995). In the North, it was the Inuit Tapirisat of Canada, created in 1971, that acted as the representative organization of Inuit. As with other native groups that formed communication societies, Inuit recognized the necessity for improved communication among and about their people.

Inuit involvement in communication issues was also strongly motivated by domestic satellite policy and early northern television broadcasts. With the institution of the Anik satellite program, the Inuit Tapirisat objected to plans to provide television to the North without context-relevant content. There was an increasing awareness of media's role in "reinforcing, even expanding the southern cultural values and the economic and political control initiated by earlier technologies" (Valaskakis, 1992, p. 68).

The consistent trend was for technological advancement to precede concern for and involvement of the affected audiences. Roth notes that northern communication policy followed in the wake of Canada's determination to compete in the aerospace industry (Roth, 1982, p. 15). It is interesting that this interpretation directly contradicts that of Indian and Northern Affairs, which contends that "the need to improve communications with – and within – the North was a primary reason for Canada's initial experiments in space technology" (Indian and Northern Affairs Canada, 1985, p. 30). Were this the case, as Roth has argued, consultation with Inuit would have revealed that their primary needs were for culturally and linguistically relevant communication, with emphasis on intra-regional connectivity (Roth, 1982, p. 37).

Of note for our subsequent discussion of computers is the Inuit perception that the increased use of English among younger television viewers would create or widen the intergenerational gap. Consequently "they lobbied for inter-community communication links and against satellite television which they saw as a threat to their language, cultural values, and the leadership of their elders" (Roth and Valaskakis, 1989, p. 224).

In large part due to these lobbying efforts, the Inuit Tapirisat received funding and

approval as part of the Anik B satellite program to experiment with media training for Inuit in a project known as Inukshuk which lasted from 1978-1981. In addition to providing training and confidence in media production and distribution, the Inukshuk project had the added benefit of demonstrating a communication track record. "The Inuit proved to the federal authorities that they were capable of organizing, operating and managing a broadcasting undertaking with a significant budget" (Roth, 1991, p. 309).

Another result of the Inukshuk and Naalavik (Northern Quebec) projects and other lobbying activities, was that Inuit were becoming a known entity in policy and regulatory circles. Murray has noted (1983) that they stood out among other Aboriginal groups in this respect. In 1980, when the Canadian Radio-television Telecommunications Commission (CRTC) began investigations into the possibility of extending television services in the North and to remote regions via satellite, the Inuit Tapirisat and John Amagoalik were actively involved in the hearings. Not only did they cannily exploit interdepartmental fissures, they enjoyed a "comparative advantage of access to the Commission" (Murray, 1983, p. 59) which was instrumental in helping them achieve their goal of an Inuit broadcasting system. The first broadcasts of the Inuit Broadcasting Corporation occurred in 1982.

Subsequently, there were several iterations of northern and native broadcast policy that helped to entrench principles, if not financial support, for Aboriginal communication and broadcasting. The first iteration of principles that would be culturally and contextually sensitive to the needs of Aboriginal audiences was the Northern Native Broadcasting Access Program in 1983 which later evolved into the Northern Broadcast

Policy in 1990 (RCAP, 1996, Vol. 3, p. 629). The latter rendition, Valaskakis notes, broadens the definition of a native undertaking from one primarily focused on language and culture to include considerations of "native ownership and control, native target audience, and native-oriented programming" (Valaskakis, 1992, p. 78).

Clearly, Inuit initiatives in the communications realm served not only to advance their own effort of cultural resistance to absorption, but also contributed to the struggles of Aboriginal groups generally. It is difficult to draw conclusions about the net impact of Aboriginal media in Aboriginal communities for as Valaskakis notes (1992, p. 78), there has been no long-term research undertaken on the topic. Nonetheless, Inuit endeavours in communications have expanded over time. Examples are the sale of a television series on Nunavut to international broadcasters and the involvement of the Inuit Broadcasting Corporation in consultative exercises.

The importance which Inuit have come to place on policy development is evident in the lead-up to the establishment of Nunavut. Several consultative conferences have been held on subjects such as traditional knowledge and the future of work to provide input to the Nunavut Implementation Commission charged with advising the federal government, the Northwest Territories and Nunavut Tunngavik Incorporation on the formation of the new government.

The first of these conferences concerned the information highway. In 1994, the Inuit Broadcasting Corporation led a process of consultation and defining of Northerners' telecommunication needs. An on-line symposium was held which connected speakers and participants from throughout Nunavut in discussions about access, costs and quality of

service. Through these fora, it was established that equality of access to the information highway is considered a basic need in the North (IBC, 1995). The factors of distance and sparse population which contribute to making the infrastructure expensive at the same time make it that much more important to Northern communities. When connections are made among northern communities, be it by travel or telephone, it is often at great cost. Hudson (1984, p. 32) notes that high expenditures on long distance telephone by Inuit households (up to three times more than for Southern households) are an indication not only of elevated cost but of a great desire for interconnectivity among communities.

Despite their dependence on telecommunications, Northerners have grown accustomed to a fairly poor quality of service. Both Koebberling (1989) and Hudson (1984) have noted serious problems that go far beyond unpredictability. Hudson identifies poor service as another one of the motivating factors that brought Inuit spokespersons into contact with the CRTC.

> Intervenors representing over half the Inuit [were] complaining about the telephone service and explaining the importance of communications for emergencies, delivery of medical and legal services, and maintaining contact between dispersed family and friends (Hudson, 1984, p. 32).

As of 1996, about a half-dozen northern communities were still without regular phone service ("Next stop: the 'Net," 1996). Those communities which are connected still experience frequent difficulties and participants in the 1994 IBC symposium remarked on the irony of discussing future applications when they were experiencing severe problems with a simple conference call that connected them to the conference (IBC, 1995).

"Some Northern communities have a single UHF telephone which, when working, carries only voice signals: the service cannot carry fax or data transmission" (IBC, 1995,

p. 23). Information that is relayed by facsimile or modem may have to be sent several times to ensure transmission which incurs greater costs, particularly as the current low bandwidth means slower transmission. In addition, Inuktitut syllabics are generally transmitted as graphics, not text (Balka, 1996) which again slows transmission and raises costs.

One result of these on-going frustrations with services the South would consider basic, is that Northerners insist on the need for greater accountability of service providers, citing the potential role of the CRTC in particular (IBC, 1995, p. 48). It is felt that the development of the information highway should allow "consistent monitoring by all levels of government, regional advisory councils and community groups to ensure the North receives a service that meets their needs" (IBC, 1995, p. 48). Clearly, the symposium was seen as a precedent for citizen participation. On-going community involvement in the development of the northern infrastructure and services is seen as essential to their success.

Other needs identified were for training, research and development, and collaboration in funding a new infrastructure. The awareness and concern for cultural issues reflected in the symposium final report distinguishes it from other planning documents (to be discussed in the following chapter).

> Participants agreed that the new technologies offered effective techniques for collecting, storing and communicating traditional knowledge electronically... however, the new technologies may also represent a threat to traditional cultures and languages, particularly if Northerners are not given the power to define and shape how the technology is to be used (IBC, 1995, pp. 2-3).

There is a persistent belief, based on past experience, that collective intervention or

influence of policy is a necessary starting point. Given the global nature of computer-mediated communication and the national determination not only to accept but to embrace information technology in all of its aspects, it is difficult to see how a single region or community could hold sway against this onslaught to develop and implement a substantively unique information technology policy.

In her 1989 doctoral dissertation, Koebberling made the following final recommendations regarding the prioritization of communication policies:

> Communication policies for the North have developed out of national policies that address specific areas of national concern, such as technology development for international marketing or economic integration of the northern frontier. The northern needs are fit into these national priorities. A comprehensive communication policy for the North has to reverse the order and the national and regional needs must become the starting point (Koebberling, 1989, p. 410).

This is an important point in her argumentation. Koebberling, like Roth (1982) stresses the hierarchical nature of policy development. Unlike Roth, however, who focussed on the tremendous progress of Inuit in influencing the policy decision-making process, Koebberling argues that influence has been quite superficial and that the apparent success resulted from an attempt to "co-opt native organizations rather than increase participation" (Koebberling, 1989, p. 410).

Current developments with regard to the information highway show that there is some truth to both perspectives. Koebberling's comments about the flow of policy-making continue to be germane in light of the global rush towards computerization; however, her recommendation that what is required to reverse this trend is that "native people must be represented in the government departments and agencies at decision making positions"

(1989, p. 410) strikes me as showing a naive understanding of how government functions.

More promising is the fact that there is community discussion and debate about the information highway in the North. This process can be seen as a distinct legacy of the Inuit approach to communications developed in the context of earlier media and documented by Roth (1982). In many ways, computers present similar problems to those confronted in the past (e.g. foreign content, foreign language) and leaders have looked to past lessons in assessing how to move forward.

Rosemarie Kuptana views the historic resourcefulness of Inuit people, their values and communication tradition as essential to engagement with the information highway.

> We hear that the development of the information highway is being driven by industry and technological innovators, that service applications, not infrastructure or community needs will shape this new superhighway. So it's particularly important that Northern and Aboriginal peoples who live in small communities and remote locations ensure that we are part of the design, that we're part of the ownership, the construction and the maintenance of the electronic highway (Kuptana, 1994).

It is important for the following discussion on commodification to acknowledge the assumptions upon which past approaches to communication media have been based. The guiding principle has been that through patience, determination and perseverance, Inuit can convince southern policy makers to consider the needs of northern and Aboriginal populations.

Regardless of the efficacy or inefficacy of these strategies in the past, some of the assumptions on which they are based may not apply as readily to the medium of computers. While organizations such as the CRTC have been joined by those such as the Information Highway Advisory Council in trying to direct the evolution of the information

highway, the capacity of regulatory or advisory bodies to exercise influence as they have in the past is in question. In the current climate, it is less clear to whom one would appeal even if a collective stance on computer use had been developed for example by Inuit. Thus, computers pose an even greater challenge to autonomous policy development than did previous media.

Some patterns seem to recur regardless of the decade or stage in history – for example the tendency for advancement to be technological first and foremost, with the needs of the people being secondary or satisfied by default (Roth, 1982; Valaskakis, 1979). In the next chapter, I will further explore this idea by assessing the significance of the computer as a commodity, which like many others, is more difficult to procure in the North than elsewhere. The perceived benefits of computer-mediated communication are much greater and more varied (e.g. telemedicine, justice, social services, educational opportunities, economic stimulation, pan-Arctic interconnection and interaction, reduced cost of travel) than were ever expected from media such as radio or television. I will describe the status of the information highway in the North and the questions of access that it raises. I will outline the significant efforts of government departments and agencies to shape the development of the information highway and will consider the insights of both politicians and theoreticians.

CHAPTER 3:

COMPUTERS AS A COMMODITY

In many respects, the infiltration of computers in the North is proceeding in a manner fairly typical of a communication commodity where government funding backs its provision and government priorities determine its arrangement. Computers are seen as a primary tool of the decentralized structure and the use of computers by government is a major priority in planning. In this chapter, I will assess the current status of the information highway in the North and the attempts by the Nunavut Implementation Commission, among others, to influence the way in which computers will be used. Recent policy documents will be used to demonstrate a primary concern with technical access and efficient operation and administration. In the subsequent theoretical discussion, I will analyze the theme of information and computers as a commodity at the national level before contrasting the values represented with those of the collectivity espoused by Inuit society.

Status of the Information Highway in the North

> The North does not currently have certain basic communications services that southern institutions take for granted...What is envisioned is a network to be designed to support interactive high speed advanced information services in all communities across the Northwest Territories, including high speed data transfers, interactive multimedia applications, high resolution graphics and medical imaging technology (Government of Northwest Territories, 1996, p. 2).

With these words, the Government of the Northwest Territories (GNWT) tendered a Request for Proposals for a high-speed digital communication backbone that would upgrade the telecommunication infrastructure, linking 58 communities across the entire

territory (GNWT, 1996). While no parameters were given for costing, it was stipulated that the "pricing for the network must reflect the role of the proposer in maximizing network utilization by other private and public sector entities" (GNWT, 1996, p. 21). The proposal furthermore stipulated the requirement for an initial bandwidth capacity of 384 Kbps with potential for expansion to T1. The cost of the former upgrade is estimated at approximately $2.6 million (Bell, 1997a, p. E7).

Three competitors bid: Ardicom Digital Communications Incorporated, Drum Communications (comprised of satellite cable television provider Cancom and Television Northern Canada) and Cyber Marketing Ltd. from Edmonton (Bell, 1996). In spring of 1997, the contract was awarded to Ardicom Digital Communications Ltd. which is a consortium of Arctic Cooperatives Ltd., Northern Aboriginal Services Company (NASCO), and the telephone company Northwestel (owned by Bell Canada). Initial trials have since been conducted, a proof-of-concept report was submitted to the GNWT and Ardicom is currently in the process of completing the pan-territorial project.

The technological method is to develop municipal area networks within communities using either Arctic Cooperatives' cable network or Northwestel phone lines. Inter-community connections will be made via earth satellites using a double-hop method. This means that information would be relayed from a community to the anchor in Yellowknife and from there to the destination (Wilkin, 1997, p. 5).

At the current time, there are three Internet service providers located in Nunavut: Nunanet in Iqaluit, Sakku Arctic Technologies in Rankin Inlet and Polarnet in Cambridge Bay. Rankin is the only location so far to have a community access centre for the

Internet. Communities without a local service provider must pay long distance charges on average of 65 cents per minute in order to connect to one of these providers. Competition among phone companies has not yet come into affect in the Northwest Territories, and by CRTC ruling this will not happen until July, 2000. In the meantime, Northwestel is proposing that a subsidization system should be set up as they do not anticipate being able to support the relatively unprofitable service in the North (losing money in all communities but Iqaluit) in the face of competition (Wilkin, 1998b). Ten applications have been submitted for Community Access Program Grants to establish centres with funds from Industry Canada and the Government of the Northwest Territories (Fisher, 1998, p. 67).

These are some of the technical difficulties of access to the system, but there are practical barriers that may be more difficult to overcome. It is not only cost that inhibits access but a host of other issues including literacy, education levels, time available, reliably functioning equipment and training and technical support staff (Balka, 1996). In theorizing about actual levels of use and access, I used a number of indirect indicators such as the known demographics of computer use, the trends in Inuit adoption of earlier communication media and their expressed preferences.

Interest in, and use of computers have doubtless expanded greatly over the past few years if one is to judge from the presence of Internet service providers and from the prevalence of reporting on the use of computers in the North. However, despite all of the attention paid to the issue of the information highway and the potential benefits of computers in the North, quantitative information is not forthcoming even where extensive

use is suggested. One service provider in Iqaluit reputedly serves hundreds of addresses, but as the user list is proprietary information, no demographic breakdown is available. Furthermore, what counts statistically as one address could be indicative of several users. These factors make it difficult to assess the extent of computer use.

An insider with better connections than I reviewed the user list of Nunanet looking for "an all-Inuit household with a home computer that is not an extension of an Inuit bureaucrat's office" (Fisher, 1998, p. 64). He could not find one. Remarking on the prevalence of computer use in the North, he observed that they are "everywhere, apparently, but in the hands and households of Inuit" (p. 64). Several fairly good indirect indicators might corroborate this finding, suggesting an adoption continuum that is even more exaggerated than in the South.

For example, Statistics Canada has found (Education Quarterly Review, 1996) that computers are used most readily by those who are better educated, more affluent, younger and urban. With the exception of youthfulness, this portrait is almost the inverse of the demographic image of an Inuit community.

A 1997 Health Canada participatory action research survey entitled "Speak with the People" sought to determine the methods of communication considered most useful in Aboriginal communities. The focus was on Aboriginal seniors, but researchers also consulted family members and others in the community. Not surprisingly, the final report found that word of mouth was considered most useful, followed by radio, and Aboriginal newspapers. Newsletters and gatherings were next on the list, with television following thereafter. Computers were not included, but as there does appear to be a correlation

between the "age" of the medium and the degree to which it is relied upon, one could expect that they would fall somewhere below television.

Finally, the editors of both major northern newspapers (Nunatsiaq News and NewsNorth) have found that their non-Aboriginal and out-of-town readership has been the segment that has increased after their publications went on-line (Zellen, 1998, p. 29).

To be sure, there are numerous examples of computer success stories, but these reports tend to fall into three general categories: individual users or school classes; adventure/tests in the far North by telecommunications companies; and progress reports on service providers and the telecommunication infrastructure.

An example of the first category is that of teacher Bill Belsey who has been particularly active in promoting the information highway in Rankin Inlet. While he has received awards and recognition for his efforts, some have argued that Ottawa is "cynically exploiting the favourable publicity generated by isolated success stories, such as Rankin Inlet's community telecentre at Leo Ussak School" ("Canada's failure," 1997).

Several stories have featured classroom use of computers either for intercultural exchange with children in other parts of the world or to track the exploits of the adventurers. Adventure trips that test new communications technology and boast of their success have been sponsored by MSAT, Northern Telecom, (Spears, 1996), by Sun Micro Systems, Kodak, Adobe Systems and by OrbCom Satellites and the Systems Engineering Society in Boston (Fisher, 1996).

So far, I have outlined the basic structure of the evolving northern telecommunication infrastructure and indicated who the major service providers are and

some of the constraints they – and by extension their customers – face. I have theorized, using such information as is available, that while there are stories of success in computer use, reliance on these indicators may create a distorted picture of actual use which is likely much less extensive among Inuit households than among northern households generally. The reasons for this are connected to income, education, cultural preferences and most fundamentally, to literacy.

It must be borne in mind that many adult Nunavumiut do not have what was considered basic literacy at one time. As the definition of literacy continues to evolve along with notions of information manipulation, "*reading and writing* will have to extend its meaning to encompass proficiency in symbolic, graphic and pictorial information control" (Lauterbach cited in Anderson, 1991, p. 7).

These questions of the actual extent and familiarity of use are important as a background against which to assess the expectations and proposals of the information highway which are envisioned and supported by organizations such as the GNWT and the Nunavut Implementation Commission (NIC). According to the GNWT, "remoteness no longer has to be an impediment to economic growth because people in all northern communities will have access to global information and the global marketplace" (GNWT, 1996, p. 7). Right away, a strong conflict is evident between this vision and the reality of educational levels. To illustrate this point, we need only take the example of electronic banking. In an article on the rise of electronic banking in the North, Langford (1998) claims

> no matter the benefits it may provide, there is widespread agreement that new technology will not resolve fundamental Northern banking issues.

> Knowledge about services and finances can be quite sophisticated in distant places, although it tends to be held by people who participate in the wage economy. There are many others who first need to learn the fundamental concepts of money management...it will have more to do with education than the computer (Langford, 1998, p. 34).

This citation reflects an understanding of the particular limitations of computer access in the North which tends to be less prevalent in NIC planning documents. The challenge of the Nunavut Implementation Commission has been to look not at whether, but at how the information highway could be most effectively introduced to Nunavut. Naturally, as their policy documents frequently constitute a justification (in this case to support expenditures on infrastructure), they do not necessarily present opposing arguments.

Between March, 1995 and June 1996, the Nunavut Implementation Commission produced a number of documents relevant to the issue of computer-mediated communication. In their initial report Footprints in New Snow (1995a), they briefly outlined communication issues as one of the entire range that the Commission would be addressing. Specifically, they sought to address the "challenge of making best use of new and emerging communications technologies in organizing the public and private sectors of the Nunavut economy" (NIC, 1995a, p. 14).

In the subsequent supplementary report Nunavut Telecommunication Needs: Community Teleservice Centres (NIC, 1995b), it was argued that common access points would make the service available and feasible whereas it would otherwise be generally unaffordable. This proposal would have seen community teleservice centres installed in order to permit more general access by community members who might not otherwise

have the financial or educational wherewithal to access computer-mediated communication.

In early 1996, two reports appeared, the first titled Identification of Social and Economic Benefits of Community Teleservice Centres in Nunavut (1996a). The second which followed in April considered the Design Options for Community Teleservice Centres in Nunavut. The latter report included cost projections for facilities, hardware and training. The former analyzed a range of needs that could be fulfilled through improved telecommunication. It included the usual references to health and education, and also some less usual applications such as justice and tele-voting (it does not consider wider applications for democracy). Fleeting references appear to questions of cultural and language preservation, but the overriding emphasis is on largely abstract economic benefits. For example, the claim is that the information highway will allow individuals, organizations and businesses to effectively participate in the global economy, play the stock markets and create new businesses. This belief is also strongly reflected in the second Footprints comprehensive report which appeared in late 1996 and argued that "through technology, a decentralized government can operate effectively and efficiently while pursuing broader policy objectives such as decentralization of public sector employment opportunities and community economic development" (NIC, 1996c, p. 55).

There is a logical fallacy that equates lack of information with the slow economic development of the North. This is a gross oversimplification that belies the complex, delicate and intimately intertwined nature of Northern economics with questions of education and lifestyle. Significantly, the eighteen recommendations of the National

Round Table on Aboriginal Economic Development and Resources (RCAP, 1993) do not even mention improved telecommunication as a priority.

Clearly, there will be useful and immediate applications for business, for example in the marketing of Aboriginal art, Northern foods, guiding, fishing, hunting, tourism and other services. There is danger, however, in seeing telecommunication as not only a faster way to get and send information, but also as a form of economic inspiration. Consider for example, the observations of J.S. Ford thirty-four years ago that "the isolation of the North has largely vanished and with the communication services now available full advantage can be taken of the most modern methods to improve the economy" (Ford, 1971, p. 266). We cannot assume that the current technologies will live up to such expectations any more than did the technology of that time.

There has been much less consideration of potentially negative impacts on the economy. A telling citation suggests that telecommunications must be "organized and provided in such a way that maximizes local social and economic development opportunities and minimizes the ability of larger external forces to gain a competitive advantage" (NIC, 1996a, p. 6).

Whether the benefits of access can be gained without the costs of openness remains to be seen. Another example which highlights the irony of proposing that computers will improve employment prospects, is the evident stress on efficiency and how certain jobs such as the counting of votes could easily be computerized in the future. The policy argument seems to give with one hand and take away with the other.

Determining who is really making the decisions and assessing their agenda is

difficult given that Nunavut does not yet exist as a politically-enabled decision-making entity. In the meantime, the continuing mandate of the current regional Government of the Northwest Territories clouds the issue somewhat. In my research, the trail of the community teleservice centres died out in the unexplained observation that "none of the three parties to the Nunavut Accord has shown much support for this idea" (Bell, 1997a, p. 23). It may be that the proposal was too expansive in its expectations (cost and nature of technology), for example, projecting annual maintenance costs after set-up of about $7.4 million per year (Bell, 1997a, p. E7). In any case, the federal government was not willing to consider the development of the proposed technical infrastructure as part of the reasonable incremental costs of start-up which it has agreed to fund. Similarly, the GNWT did not include this design parameter in their Request for Proposals (1996).

Unfortunately, the influence of the recommendation to create teleservice centres does not seem immediately apparent in the design considerations of the new system. It seems rather to be driven primarily by a concern for the use and efficacy of the new government, with community-focused initiatives apparently having been set aside. Even if these preliminary reports will not guide the ultimate shape of the system, they contain important reminders such as the "tendency to emphasize equipment costs over human resource costs throughout the computer industry" (Balka, 1996, p. 6). Perhaps most significantly, these documents demonstrate a concern for broad public access which now does not seem to have a champion.

As was stated at the outset of this chapter, it appears that the development of the telecommunications infrastructure in the North is still primarily driven by the interests of

business service providers and by the needs of government. In the remaining portions of this chapter, I will expand the theme of guiding policy principles to show the consistency between the regional and national levels. Then I will introduce the theoretical concept of commodification to provide qualitative analysis of some of the values underlying the spread of information technology.

Rationale for Information Highway Development in Canada

Analysis of several recent, key policy documents concerning information technology in Canada reveals the uniformity of the view of information as a commodity and a direct economic benefit. The federal government has announced its intention to make Canada the most connected nation in the world because "the revolution in the knowledge and information economy is transforming all sectors of the economy from primary resources to service industries" and "Canada is well-positioned to be a world leader in the global knowledge-based economy" (Governor General, 1997, p. 15). Notable here is the acceptance of the primacy of information and the emphasis on revolution, on mandatory change that cannot and should not be stopped but should rather excite a competitive national response.

Line departments (notably Industry Canada) fully support the priorities of greater efficiency and economic competitiveness through computerization.

> The goal is to ensure that we have the transportation, telecommunications and information networks that will allow firms to function effectively in the innovative economy, where moving information, goods and people efficiently and in innovative ways is the key to success (Industry Canada, 1994, p. 17).

Various networks are grouped indiscriminately as are the very distinct categories of things

they connect. Information, goods and people are all viewed as resources to be deployed. The objective seems to be the accumulation of wealth through the accumulation of data. Great pride is expressed in marketing materials which speak of the "vast and growing collection of information" represented by Industry Canada's Strategis database, including some 60,000 reports, half a million pages of searchable text and two gigabytes of statistical data. It is not merely implied but stated that this is what will enable businesses to "make critical decisions about opportunities for growth, explore new markets, find partners, form alliances, find and develop new technologies" (Industry Canada, n.d., p. 2).

The preceding promise assumes that access to the entirety of available information is what enables effective planning and decision-making. In fact, more facts might as easily lead to confusion among conflicting options or even paralysis. The fault of the data-equals- success equation is that it does not consider the intervening transformative process (Rosenberg, 1994; Roszak, 1986). Although this equation is repeated everywhere it often goes without substantiation. The public discourse tends to take on an intertextual quality. For example, a CRTC report (1995) on the information highway states that "the Commission shares the government's view that competition in facilities and services is key to the creation of wealth and ideas in the information economy" (p. 5).

The report of the Information Highway Advisory Council (IHAC) does not deviate, supporting the belief in a greater public good to be achieved through information's transformation of the economy (IHAC, 1995). Despite the title of Community Connection Content Menzies says, it "repeats the call for market competition" while disregarding cultural priorities or "taking them as achievable within the master vision of corporate

competition" (Menzies, 1996, pp. 22-23). She challenges these vague assumptions with concrete evidence of restructuring and downsizing. On the other hand, the Council is content to assert that "if Canada minimizes regulation, creates a robust environment for R&D and seizes opportunities...its efforts will be repaid through the creation of new businesses, products, services and jobs" (IHAC, 1995, p. xviii).

There is very little empirical evidence, in the IHAC report or others, of how jobs will be created. The fabrication of high technology aside, the net effects of computerization on the labour market are still an area of contentious debate. "Despite record investment in machinery and equipment, particularly high-tech, the productivity record has been disappointing and Canada's economic performance remains below potential" (Bloom, Burrows, Lafleur and Squires, 1997, p. 2). As Noble observes, the burden of critical proof falls to those at the margins of the discourse. Federal policy-making bodies and the economic infrastructures that support them, "have never had to marshal evidence or formulate arguments to defend their position; the power of their hegemonic ideology has alone been sufficient to carry their campaign" (Noble, 1995, p. 108).

All of the cited policy documents express an enthusiasm that sees computerization and the global knowledge-based economy as solutions to problems such as unemployment that have plagued the nation for years. This invective is persuasive even in the absence of proof. Consequently, people who

> have no clear idea what they mean by information or why they should want so much of it are nonetheless prepared to believe that we live in an Information Age, which makes every computer around us what the relics of the True Cross were in the Age of Faith: emblems of salvation (Roszak,

1986, p. x).

The tone of much popular writing about computer-mediated communication is indeed zealous and often strives to be prophetic. Roszak has also characterized the work of technopundits as "breezy scenarios of Things to Come pitched at about the intellectual level of advertising copy" (Roszak, 1986, p. 21). In some contexts, this might be expected. Negroponte, who writes for Wired magazine and is a professor at MIT, might be excused for being enthusiastic about the prospect of being able to "brand your toast in the morning with the closing price of your favorite stock" (Negroponte, 1995, p. 213). The problem with this kind of speculation, however, (and it is a serious one) is that in its wonderment it diverts attention from major issues like the structural inequalities that are perpetuated by the spread of technology.

In conclusion, we have seen that the messages and motivations that were first documented in the policy approach to the information highway at the regional level continue or some would say flow seamlessly from the sort of messaging that prevails on the same subjects at the national level. Concern for competition and efficiency are pervasive and the promise of jobs and economic growth is accepted as self-evident.

One way in which theorists have described the consequences of computerization is in terms of the computer's power to further subdivide and automate work processes that have already marginalized the human component. In the next section, I will consider the importance of the theoretical concept of commodification for understanding one particular vision of computers and assess how that may conflict with some values of Inuit society.

Theoretical Concept of Commodification

The theoretical importance of the commodity stems from Marxian analyses of the way in which social and labour relations are concealed within technological artifacts. The dynamic of commodification in the economy is distinct from its role in communication (Mosco, 1996) but both levels are relevant in the following discussions of technology in the workplace and computers as commodities.

The workplace and the larger economy are often used to show how technological enframing operates. Methods of production under capitalism and their overriding orientation to commercial profit determine the way work and workplace relations are structured. Here again, the logic of scientific efficiency breaks processes down to their smallest elements (as in a production line). The resulting division of labour is seen as depriving workers of a more satisfying engagement with their work.

The social consequences of an increasingly computerized workplace are described variously as the displacement, dehumanization and disempowerment of workers (Franklin, 1992; Menzies, 1989, 1996; Noble, 1995). Computers are replacing people on the job, but the remaining jobs are also increasingly part of a computerized matrix. People become objects to be managed. The true cost and nature of their altered relationships is hidden within the commodity produced.

The atomization of work processes results in a degradation of the nature of work itself (Franklin, 1992; Menzies, 1989, 1996; Noble, 1995). Control is lost by individuals and conceded to the system. Such systems are based on what Franklin calls prescriptive technologies, those that "eliminate the occasions for decision-making and judgement in

general and especially for the making of *principled* decisions" (1992, p. 25). The loss of reciprocity among people, of face-to-face communication is in Franklin's account the most significant deprivation.

Noble (1995) concurs that the locus of decision-making and power is removed from the workers at the shop-floor level when work is automated. He deconstructs the rationale of the "circle of prosperity" (p. 101) which runs causally thus: investment-innovation-productivity-savings-competitiveness. In some unspecified fashion, gains are supposed to accrue to the community and lead to reinvestment. Noble, like Menzies (1996) argues increased efficiency generally results in savings through labour; hence, the phenomenon of jobless growth. If the argument about putative benefits cannot be sustained, why does the rationale for computerization persist?

Again, in a structural, Marxian analysis, the consensus upholds the status quo of a capitalist system and ensures that those who currently benefit will continue to do so. Current arrangements of ownership and control (Murdock, 1995) and the associated concentrations of power (Herman and Chomsky, 1988) go unchallenged. Industry and government are most frequently seen as major beneficiaries. Thus, bringing together the historical and the structural critique, "computers are merely a recent manifestation of a human will to dominate and to see everything technologically, in terms of causes, control and domination" (Coyne, 1995, p. 54).

Many of these concepts are captured in the school of thought known as the political economy of communication. Mosco (1996, p. 133) considers its larger theoretical streams to include the business of communication, the role of the state,

connections between corporate and state sectors, links between political economy and global/national concerns, the language of institutional power, class power, and the relationship of class power to gender, race and labour.

All of these are surely relevant to an analysis of computer-mediated communication. However, it is in his discussion of commodification as an entry point to the political economy of communication that Mosco, like so many of the writers cited, chooses to use the computer to illustrate a more general concept, suggesting that "its value in use and exchange tends to mystify the ability to comprehend the computer as the embodiment of an international division of labour that stratifies productive relations among class, gender, national and spatial dimensions" (Mosco, 1996, p. 143).

A further refinement describes commodity fetishism, a corollary in which objects or technologies take on a life of their own, divorced from their origins. The computer then comes to seem

> as a power over people, as the force that shapes, determines, constrains, or otherwise controls social development. The outcome of this double mystification is that the product of a social process is given an existence of its own and the power to shape social life (Mosco, 1996, p. 143).

This is the junction of the dual role of commodification in the economy and in social practice. In the first Mosco citation, we saw the computer as a commodity that is packaged and sold as a private good. To put this in perspective, it must be remembered that some maintain computer-mediated communication should be a public utility (Woods, 1993; Grossman, 1995). It was also described as another manifestation of a technological imperative that divides labour and alienates people.

In the second citation, the computer is seen more as an engine of commodification

itself, transforming the character of information, communication and social practice. The model of communication generally referred to as the transmission model will assist in understanding how this commodification operates. The original model is attributed to the work of mathematicians Shannon and Weaver who produced a model of communication as transmission in which an object/message passed from the source to the receiver. Personal interaction, the content of the message and the cultural context in which it was transmitted do not figure as considerations in this model.

This view of information technology values communication as data – discrete items to be stored in databanks, accessed (mined) and transferred (shipped).

> Technological society assumes that human communication is the passing of information from one person to the other, that the essence of understanding resides in the information. We accord greater value to what can be passed through the conduit and stored in databases than what is exchanged through other modes of complex human interaction (Coyne, 1995, p. 80).

Carey has eloquently defined this distinction as a contrast between a transmission model and what he calls a ritual model of communication. The latter "is directed not toward the extension of messages in space but toward the maintenance of society in time; not the act of imparting information but the representation of shared beliefs" (Carey, 1992, p. 18).

Negroponte, perhaps inadvertently, provides a good example of a mentality which excludes the importance of ritual in communication. Speaking of the spectacular technical innovations in data compression, decompression, coding and decoding he says "it is as if we suddenly have been able to make freeze-dried cappuccino, which is so good that by adding water, it comes back to us as rich and aromatic as any freshly brewed in an Italian

cafe" (Negroponte, 1995, p. 17). Here, coffee is viewed as a product and the importance of the coffee-making process, or ritual, is omitted. Gone is the noise of the cappuccino machine, the care of the person who makes it, the warmth and conversations of the cafe. Some believe it is the nature of computers to eliminate sensuality. "Only one narrow band of our experience is represented in the computer: logical reason. Sensual contact, intuition, unarticulated common-sense judgements, aesthetic taste have been largely, if not wholly, left out" (Roszak, 1986, p. 70).

The obvious emphasis on efficiency characterizes the transmission model and serves to override approaches that might lead to social change (Hardt, 1992). "Communication is defined in terms of effectiveness or efficiency, concentrating on the functions of messages or on the abilities of individuals or groups to process information, rather than in terms of individual intentions, cultural identity, or historical moments and problems" (p. 16).

The privileging of efficiency and of information objects reaches well beyond the field of communication into those of education and civic participation. Roszak (1986) contends that the spread of computers into classrooms will irrevocably change ways of thinking to support a database model of the mind. In seeking to deflate some of the more exaggerated claims for computers, he rails against the unfortunate conflation of information with knowledge. "The mind thinks with ideas, not with information" (p. 88) and information can never become knowledge "without the active intervention of theoretical imagination" (p. 109). There is a clear resonance here with Freire's pedagogical challenge to the "banking" concept of education (Freire, 1997). Freire

believes that in order to more fully engage participants, learning processes must eschew a method of passive acquisition of information. Instead, they should foster a dynamic, participatory manipulation and transformation of theoretical and practical problems by active students – students who thus become their own teachers. Freire argues that participation is key to personal development and that information should fuel discourse and dialogue.

These concepts also underlie Habermas' study (1989) of the nature of collective will formation through the public sphere. In his view, the processes of commodification of information undermine the potential for meaningful civic participation. The media and public relations engines that turn political discourse into promotional sound-bytes of candidate/products and the production and packaging of news for maximum sales erode the dialectical foundations of participation.

My purpose in touching, however briefly, on the academically huge works of Habermas (1989) and Freire (1997) is to show how pervasive the paradigm of information-as-commodity is. It is not confined to studies of political economy or information theory, but is central to ideas of education and democratic participation as well. In summary, a privileging of information as a static, transferable and saleable good inverts what would more appropriately be a concern for the dynamic of human engagement. Information is perhaps most valuable as a fuel for other social and economic functions.

This brings us to several conclusions about the conceptualization of computers as a commodity and Inuit society. In the view of computers as a commodity that prevails,

information technology embodies values that are quite disparate from those Inuit have traditionally cherished. Their historic valuation of the good of the collectivity, of sharing and collaboration over individual competition is one example (Balicki, 1970; Dacks, 1990) which challenges liberal-democratic values of individualism. Inuit society has historically been egalitarian and has stressed a non-competitive, non-individualistic, collaborative approach to work and social organization. Thus, a stress on computers that sees them as an efficient aid to information processing in order to secure a competitive edge may not be easily adapted where communication is viewed as a human and participatory activity.

> From the beginning the Inuit have stressed maintenance of original communication systems based on the oral tradition. In particular, they have emphasized the interactive component of communication structures, the general sharing of knowledge, non-hierarchical social arrangements and the importance of tradition. Direct communication emphasizes the process rather than the product and a different relationship between producers and audience in order to initiate public information exchange rather than deliver a finished product (Koebberling, 1989, p. 394).

To this point I have explored a particular, if prevalent, conception of computers as a commodity. The importance of this view is apparent in much of the rhetoric that characterizes policy documents about the information highway. There are however, numerous other perspectives concerning the potential uses of computer-mediated communication and it is to these many visions that I will devote the next chapter. I will move beyond some of the economic and political issues which determine whether one is likely to gain access to computers in the first place to more fully explore the idea of different ways of valuing knowledge.

CHAPTER 4:

COMPUTERS AS A TOOL

In chapter four, I consider three aspects of pragmatic use of computers which are quite relevant to the context of Nunavut: community development, cultural perpetuation and identity formation. In each case, I establish a theoretical basis for the discussion and then proceed to consider what significance these theories might have for Inuit. The discussion of community development will draw on contextual knowledge presented in chapter two, but refine the theoretical focus to the particular dynamic of community interaction. Cultural perpetuation is of course a major theme of the thesis, but the discussion here will focus on particular values which may be strengthened or undermined by computer-mediated communication. Finally, the question of identity formation, linked as it is to cultural perpetuation and community development, will permit an exploration of the significance of electronic communication at the most personal level of the individual. This discussion will presage arguments in the concluding chapter about the need for a broader understanding of computer literacy at the level of the individual user.

Computers and Community

The concept of community is frequently invoked with reference to computers, although its definition varies greatly from one source to another. Grant (1986) has written that "computers are not neutral instruments, but instruments that exclude certain forms of community and permit others" (p. 26). In fact, some argue, the mediation of personal relations through computers leads to a false sense of community, to the creation of "pseudo realities and pseudo communities" (Franklin, 1992, p. 117). As we saw in the

previous chapter, the favouring of the "logic of competitiveness" over the "logic of community" (Menzies, 1996, p. xv) is seen as a conscious social policy choice.

Community is variously portrayed as the adhesion to a larger shared but abstract reference point such as the nation (Anderson, 1983); as the creation of social networks by individuals (Rheingold, 1993a, 1993b); or as the result of the unifying influence of common causes or areas of interest (Damico, 1978).

Anderson (1983) has argued that the modern sensibility necessitates identification with a larger social framework in the form of imagined communities. The nation has less to do with one's life than the immediate geographical community, but it provides an ideological point of reference which is supported through public discourse. The role of imagination and voluntary identification are two ways to explain why proponents of computer-mediated communication adhere to the notion of community in cyberspace.

Rheingold (1993a) maintains that "if CMC has a potential, it is in the way people in so many parts of the Net fiercely defend the use of the term 'community' to describe the relationships we have built on-line" (p. 60). The sense in which he has experienced community on-line is in the act of sharing: friendly conviviality, gossip and humour, life stories and events, hobbies, medical advice and so on (1993b). He notes that on-line encounters are frequently preludes to personal meetings when that is possible; therefore the on-line community can substitute for, or be an entree into, a real-world social life.

Without underestimating the powerful social dynamic that Rheingold describes (1993a, 1993b), there are some visions of community that are still more purposeful. An affiliation around social or political causes can incorporate computer-mediated

communication into the coordination and execution of concerted action. This vision would be consistent with Enzenberger's description of the mobilizing and subversive power of new media. "The open secret of the electronic media, the decisive political factor, which has been waiting, suppressed or crippled, for its moment to come, is their mobilizing power" (Enzensberger, 1974, p. 96).

Enzensberger further observes that the ability for some to transmit and others only to receive, is not technically necessary but serves political ends. Now, with the reciprocal, interactive potential of computers, the potential for mobilization is even greater than at the time of his writing. If one takes as subversive any challenge to existing structures of power, then "the direct mobilizing potentialities of the media become still more clear when they are consciously used for subversive ends" (Enzensberger, 1974, p. 114).

The ability to contact theoretically limitless numbers of people, raising their awareness of issues and soliciting their active involvement is a convincing notion of community. As development reporter John Stackhouse observes, "the Internet's surf is up in the Third World, giving political activists, journalists, executives and development workers access to ideas and information – and the night sweats to political establishments everywhere" (Stackhouse, 1996, cover, p. A1). He further notes Vandana Shiva's use of the Internet to intercept American policy documents on biodiversity and mobilize a huge, coordinated lobby effort by environmental groups.

The extension of personal circles of friendship and interest, the unison of global citizens in common causes – these are two possible answers to the question of what would hold a cybercommunity together. Another possible answer is 'nothing'. What makes the

nature of this new computer-mediated interaction different, Jones says, may be that one "may disengage with little or no consequence" (Jones, 1995, p. 11). This critique has been made by feminist analysts of virtual systems, of whom Stone says "it is perhaps this ability more than anything else – the ability to log out – that [they] find most rankling....would that we could all log out of our oppressions or our unpleasant social situation" (Stone, 1995, p. 120).

There is no requirement, *prima facie,* for commitment to a virtual community. Computer-mediated communication may theoretically permit one to seek out like-minded individuals and groups even if they don't exist in one's immediate environs. At the same time, this kind of communication can be seen as a means to avoid dealing with "the messy, frustrating angularities of imperfect daily life" (Roszak, 1986, p. 68).

Even when one finds a common community of interest, if any conflict emerges it is likely easier to cease to participate than to persist in the resolution of the problem. Although the desire for engagement is seen as a fundamental human urge, some believe the characteristic of commitment to be germane to participation. This notion is especially prevalent in democratic theory, for example in analyses of Habermas' concern with public discourse where "the speaker cannot dissociate him or herself from the possible effects of his or her discourse" (Garnham, 1992, p. 368).

Dewey's educational and democratic philosophies form part of an historic movement or philosophy known as Pragmatism. In Hardt's history of communication theory in America (1992), he identifies the concerns of the pragmatists – Dewey central among them – as being the social, the role of community and the process of

communication (p. 54). Dewey specifies that a prerequisite of the formation of community is "likemindedness." People "must have something in common in order to form a community or society... aims, beliefs, aspirations, knowledge – a common understanding" (Damico, 1978, p. 44).

According to Damico (1978), Dewey fought for an organicist view of society, not one characterized by an atomistic aggregation of individuals. Yet the latter sounds very much like cybercitizens' conception of their community. To wit: "CMC allows us to customize our social contacts from fragmented communities" (Jones, 1995, p. 16). The unifying force seems to be a kind of mental empathy, which Coyne (1995) describes as ontological proximity. In trying to illuminate the essence of being that is concealed within information technology, he combines the idea of imagined togetherness with a rejection of the communication-as-information paradigm.

> What brings proximity is not the mediation of electronic communication per se but the proximal region brought into being through our concern....In building community, it is our involvement in a shared world that constitutes our togetherness. Communication with others, either face-to-face or across a network, is not to be understood primarily as passing information. Because we are in-the-world, we are already with each other, socialized, engaged, involved in shared practices. The construction that is 'information' comes later as an ontic understanding of the phenomenon (Coyne, 1995, pp. 169-175).

In other words, because we are already mentally with the object of our concern, the mode of communication is less important than the essence of the unity. Communication technology is, however, "no guarantee of ontological proximity" (Coyne, 1995, p. 169). In fact, Jones (1995) argues, "connection does not inherently make for community nor does it lead to any necessary exchanges of information, meaning and sense

making at all" (p. 12). This observation will be significant in assessing the nature of on-line political communication.

Despite the nebulous nature of on-line communities and especially the lack of requirement for commitment, they are viewed by some as a potential arena for renewed civic participation. These conceptions range from simple televoting – a form of direct democracy that would allow for more regular consultation with the public through plebiscites – to visions that are more in keeping with the shared debate and opinions of a public sphere. A perceived counterforce to packaged and commodified media is seen as a source of hope for democracy, as in the query "to what extent can the [Internet] override the antidemocratic implications of the media marketplace and foster more democratic media and a more democratic political culture?" (McChesney, 1996, p. 99).

Reflections on the wisdom or foolishness of involving the larger populace directly in decision-making form a long tradition well documented by Pateman (1970). Democratic theory teaches that the size of the populace is the most obvious constraint preventing a more extensive participation. The massive preparation and organization involved in preparing for an election of representative leaders has always made of these events an historical occasion, in addition to ensuring that citizens' active participation would be limited.

Representative democracy is necessary to make the unwieldy public manageable. An important corollary is that it mutes the preferential extremes of the public which might otherwise manifest as mob rule. Implicit here is the belief that more educated, better qualified elites are needed to run the affairs of nations. Pateman argues, in keeping with

the spirit of Rousseau, that the "experience of participation in decision making itself...attaches the individual to his society and is instrumental in developing it into a true community" (Pateman, 1970, p. 27).

What distinguishes these ideas from that of televoting conceptions of electronic democracy is the debate that accompanies decision-making. Those opposed to greater participation via computers see visions of the illinformed voting in isolation (Grossman, 1995). Those in favour of electronic democracy claim "the virtue of interactive technology is that, unlike mass participation and data transformation technology, it permits the concurrent adjustment of differing views and mutual influence between speakers and listeners" (Laudon, 1977, p. 46).

To summarize this portion of the theoretical insights on the nature of community and democratic participation, it can be said that differing notions of what constitutes community will necessarily determine whether theorists view computers as nodes on a network of social contacts, or whether they are seen to encourage superficial facades of exchange and relationships. As we move to a consideration of how some of these theories might apply in the context of Nunavut, the first things that can be remarked upon are how much more the understanding of community there is grounded, and how much less the conception of politics is academic.

Computers and Community in Nunavut

Based on the information provided in chapter two about the organization of Inuit society and the collective political mobilization, it should be clear that while the concept of community is integrally important to Inuit society, it is also perhaps more precisely

defined than that envisioned by information technology theorists. The same desire for contact and for collective involvement in social issues motivates both. The many real ways in which small, scattered Inuit communities are bound, however, and their experience with collective will-formation bode well for the use of the Internet some day even if it is only for televoting.

The official Northern routes of transportation and communication have generally run North/South, binding Inuit to the administrative centres of the south, and eventually in fixed locations in the North. Thus, they may have been less isolated from the rest of the world, but were still quite isolated from other Inuit communities. The North has not been connected within itself. The information highway would crosscut the North, providing greater cohesion in a pan-Arctic network. Northerners would, in theory, have greater opportunity for social, political, economic and cultural collaboration and exchange.

It is true that there is both a need and a desire for greater political information and exchange among Nunavumiut especially as April 1999 approaches. In the past, as Roth (1991) found in her study of the 1988 federal election communication in the North, there has been a lack of access to broadcast time, of coverage of election issues in Aboriginal languages, of opportunities for candidates to communicate their positions, and of political broadcasting rules in keeping with particular considerations of the North (p. 201).

The Internet might be one way politicians and leaders could convey timely and important information to their constituents. Furthermore, it could allow for feedback and for discussion among citizens. A caution is necessary here, however. Politics as practiced by real people is not always what scholars envision in their concept of democratic

exchange. Often, as in the case of the Nunanet website political forum (www.nunanet/com/politics, September 7, 1998, pp. 5-7), comments are as much about venting frustration, airing jokes, exchanging insults and the like as they are about collective will formation. As one commentator described it "political junkies use internet to log on, mouth off" (Phillips, 1997b, p. C6).

By the same token, several conversations did concern serious subjects such as the clean-up of contaminated sites, racism and the viability of the future government. One test of the Internet as a tool for public opinion surveys queried participants about "who's got the best haircut in Nunavut?" The test, apart from being a good indicator of Northern humour, was successful in that it promoted intercommunity communication, opinion formation and discussion of a single issue (the winner was Mark Evaloarjuk, MLA for Amittuq) ("Who's got the best," 1997).

While there is no question of the need and the desire for better communications connections among Northerners, it is Northerners alone who will define the nature of the communication that occurs. The Internet may simply be a cheaper way for far-flung family members and friends to keep in touch. The following pages will expand on those bonds which have perpetuated community in the North before considering whether computer-mediated communication might be integral to their reproduction.

Inuit are bound by their culture, their common experience of contact with Euro-Canadian society, by shared socio-economic realities, collective political mobilization, frequent and successful exercises of direct democracy, and by their common dream of Nunavut. The conceptualization of community which is most relevant here is that of

development theorists whose concern is with closely-knit, cultural groups bound by physical co-location. In such a context, what community members value, and what "appears to underly [sic] the central traditional forms of social life, are linkages between persons and groups....[If] the *prime value of sociality* is eroded by a particular [technology, it is] inimical to the reproduction of community" (Appadurai, 1990, p. 188).

Technology and Development

In general, development theorists have been highly critical of the effects of introduced communication technologies in the process of community development. Many are concerned with the perpetuation of historic patterns of dependence under colonialism as societies with little or no technology industry must import and therefore become dependent on others for both hardware and software.

Theorists seek to warn of the consequences of importing foreign ideologies along with the technologies they have spawned. In this view, "the importation of the communication media is a classic example of how the whole institutional complex and administrative organization [are] brought in along with the supposedly 'value-free' technology" (Hamelink, c. 1983, p. 17).

Proposed defenses vary from developing technologies independently (Reddi, 1988) to closing out foreign communications altogether (Hamelink, c.1983; Mander, 1991). Some entirely reject the idea that information technologies could be used in alternative ways for the achievement of autonomy and democracy. Instead, they see the perpetuation of old patterns as the "have-nots will become more dependent upon the few that have and the use of telematics by governments will centralize and increase their powers over

people" (Lent, 1988, p. 32).

Such arguments rarely omit the connection of communication technologies to the domination of the global capitalist system and government bureaucracies (Jayaweera and Amunugama, 1988). What they and other theorists of information technology seek to demonstrate is that choices have been made in the development of the technology that limit the range of possible subsequent uses (Menzies, 1989, 1996; Rosenberg, 1994). Once presented as part of a technological package, the "accumulated choices vested in a particular technological decision seem neutral. It seems 'normal' and 'rational' to use the technology this way. There is no sense of choices that were excluded or unexplored" (Menzies, 1989, p. 55).

Based on previous experience, however, Inuit are keenly aware of the importance and irrevocability of the decision path. As one Iqaluit discussion group observed, "when any technology comes in there is a potential to hurt [and so] it is important that users' interests are heard...rather than having to readjust and realign and heal afterwards" (IBC, 1995, p. 37). In the absence of formally developed policy, an awareness of the inherent tendencies and dualisms might help in making conscious decisions about use. Some examples of possible influences of computers on community development follow below.

In the formation of the new government, the model of power centralized in Ottawa or Yellowknife has been rejected in favour of a decentralized model that is intended to disperse economic benefit throughout the communities of Nunavut. Efficient communication via computers has been touted as the key to running this decentralized government effectively. Savings in time and money are expected to result from the

substitution of videoconferencing for travel.

However, computer communication can also mean that functions such as administration can more effectively be run from a single centre. This in turn means that there could be less incentive to ensure governmental, medical, educational and judicial presence in the community when the service can be offered more efficiently from afar.

Economic savings on travel, presuming the telecommunication infrastructure performs as expected, are calculable. But what of the loss of human contact, the consequences of which may be less readily perceptible or measurable? This question can be asked with respect to almost every computer application. For example, Northerners would gain by not having to leave home for routine medical treatment (e.g. during pregnancy), but the doctor/patient relationship would be mediated electronically.

Similarly, students would gain from long distance learning in numerous ways, for example, by having greater choice and not having to leave home, families and jobs to further their education. However the student-teacher interaction may be weakened at the same time as greater reliance is created on Southern institutions as sources of knowledge. And the simplification of having witnesses testify from afar could speed up the judicial process but would not necessarily help in the strengthening of community-based Aboriginal approaches to the administration of justice.

Computerization may encourage the young in particular to think and speak in English, creating a divide and a loss of respect for elders who are not using the current technology. Furthermore, computers can tend to isolate people from one another in that computing is not generally a shared activity, leading to shared knowledge.

A recent study published in the American Pscyhologist found some disturbing psychological and emotional trends among heavy Internet users. Study head Robert Kraut theorized that the reason for the depression and loneliness experienced by participants was that they were "substituting weaker social ties for stronger ones" by having "conversations on narrower topics with strangers [instead of] with people who are connected to their life" ("Only the lonely," 1998).

The Nunavut Implementation Commission suggested in its proposal on community teleservice centres (1995b) that a communal venue might serve a dual purpose of bringing people together and giving them access to computers. However under the current infrastructure model that does not require communal access points, this could only happen if communities took the initiative to create access points themselves.

Mander (1991) has written quite extensively on what he believes will be the effects on Aboriginal culture of the use of media such as television and computers. For example, he has opined that "the Inuit, Indian and other native groups who are given [?!] computers will begin to conceptualize nature in the objective terms used by Western development interests...while the more powerful, mythical, sensory and spiritual outlook...will be sacrificed" (p. 44). While it should be clear to the reader that I do not support absolute conclusions on behalf of other people about the well-being of their culture, Mander does make some interesting observations about the relationship between communication media and the natural world which are pertinent to a discussion of computers.

Of television, Mander has noted that the stream-like sequence of images results in the acceleration of the nervous system, perceptual speed-up and confusion, and a confused

sense of reality. Cognitive dissonance is created between the projected world and the world in which the viewer lives. "Having lived in the amazingly rapid world of television imagery, ordinary life is dull by comparison, and far too slow. But consider how it affects one's ability to be in nature. The natural world is *really* slow" (Mander, 1991, pp. 85-86). In the context of the North, this would suggest that a medium like computers, predicated on speed and diversity, might have a similar or even exaggerated effect. Furthermore, Mander suggests, the emphasis on speed deprives people of the satisfaction and the "personal engagement that *not* rushing allows" (p. 66).

What Mander is arguing in essence, is that an awareness of technology in a particular context demands not only an understanding of the technology itself but also of the particular values it may challenge. This is the essential point to be taken away from the preceding discussion of computers, community and development. Decisions about the usefulness of technology for community development goals and political participation cannot be made independently of a consideration of the core values that a culture has chosen to perpetuate.

Cultural Perpetuation

The reader will note how closely linked many of these discussions are with fundamental questions of cultural values. In this section, I will look more specifically at how Inuit and their organizations have chosen to define their culture and what their priorities suggest about computer-mediated communication. In speaking of indigenous cultures, it is easy for the outsider to fall into the trap of portraying culture as threatened or vulnerable to change and potentially to destruction. This perspective suggests a static

repository or an archive of traditional practices that cannot withstand modernity and outside influences. This tendency is consistently criticized by theorists as at best a superficial understanding of the dynamics of culture or at worst a manifestation of romantic paternalism (see for example Tomlinson's critique (1991) of Hamelink (c. 1983)). Therefore, I will use the definition of culture set out by the Inuit Circumpolar Conference in its Principles and Elements for a Comprehensive Arctic Policy which asserted that

> culture, including all of its creative, spiritual and material aspects, constitutes the foundation upon which a people thrive. Culture provides meaning and identity to community life. In order for Inuit to continue to develop as a distinct people in the Arctic, appropriate conditions for the on-going growth and enrichment of Inuit culture must be assured (Inuit Circumpolar Conference, c. 1988, p. 99).

In practice, and in belief, Inuit culture is vital and capable of responding to change. Theorists frequently speak of the synthesis which has been sought between traditional practice and modernity (Goehring, 1993). Furthermore, it has been argued that "Inuit success will not depend on their isolating themselves from the rest of the world in some state of cultural purity. It will depend on their ability to subvert capitalist economy, technology, images and institutions" (Kulchyski, 1989, p. 54).

The concept of synthesis is particularly useful when speaking of communication traditions and media that do not replace their predecessors but are integrated and adapted according to need. Thus, orality as the once-exclusive mode of thought and expression in Inuit society has not been replaced by other communication media. Rather, it has been joined by ever-more mechanical, if not more sophisticated approaches to communication. Orality is one foundation for a complex nexus of values and cultural distinctions that could be summarized in the concept of world view.

The quality of holism characterized Inuit cosmology traditionally and continues to be an important philosophical perspective. In the pages that follow, I will look more closely at the inseparability of the manifold components of world view. I will explore theorists' attempts to describe distinctions and identify values that Inuit have elaborated as integral to their world view.

Indigenous World Views and Computers

There are many ways of approaching this complex concept of differing world views. It is a rich and diverse area for study, which as Howard notes, includes

> all sorts of subsistence production systems, knowledge regarding ecosystems and related logics of subsistence, traditional methods of healing and prophylaxis, traditional methods of socialization and education, methods for adjudicating disputes and the convictions and experience that inform them, traditional systems of self-government and communal decision-making, and a myriad of languages and written and oral traditions (Howard, 1994, p. 192).

Using this illustrative approach, there are many distinct values which have historically distinguished Inuit culture and kept it strong, including collaboration, sharing, valuing of the collectivity, pragmatism and determination, valuing of the family, non-interference in child-raising, respect for elders, consensual decision-making, egalitarianism, holism and unity with the natural environment (Balicki, 1970; Brody, 1987; Moss, 1995). Aboriginal peoples have a unique relationship to the land, viewing it as a source of life to which the people belong, rather than as an economic resource belonging to individuals.

Goehring (1993) has attempted to characterize global distinctions of indigenous cultures by contrasting the tensions between Western values and those common in indigenous cultures, as shown in the excerpt on the next page.

A - Industrial	B - Indigenous
- money as 'capital'	- nature as 'capital'
- quantitative	- qualitative
- domination of nature	- living within nature
- centralization	- decentralization
- democratic or autocratic decision-making	- consensus decision-making
- power concentrated in the hands of a few	- power broadly based
- linear time	- concentric time
- ethic of competition	- ethic of cooperation

Some seek overarching principles to describe indigenous ways of thinking. Marglin uses the Greek terms *techne* and *episteme*: the former, he argues, is characterized by intuition, contextuality, practicality, discovery and personality (Marglin, 1990). *Techne* operates from a perspective that is within or unified with its environment, rather than looking down from above or outside and analyzing the situation objectively. Brody evinces a deep appreciation for this mode of thought, likening the decisions of Aboriginal hunters to the certainties of artists.

> The processing of information leads into the domain of spirituality and metaphor where accumulated knowledge, intuition and the subtlest of connections with the natural world can generate choices on a basis that is quicker and surer than a narrow rationality (Brody, 1987, p. 93).

The method of processing used by computers can be readily contrasted with this intuitive and syncretic approach. While it may seem a leap to compare the functioning of the human mind to that of the computer's processing unit, this discussion is simply a more culturally-oriented reprise of the discussion on commodification in chapter three.

In the technical sense, computers are a reductionist proposition. Binary coding operates on a yes/no logical basis and linear processing is the *forte* of information technology. Digitization can therefore be seen symbolically as an assertion of objective,

scientific rationality over other equally valid approaches.

The philosophical underpinnings of information technology lie in the valuation of logic and scientific rationality. Regardless of the discipline in question, theorists look to Bacon and Descartes as the beginnings of a method of inquiry privileging empiricism and objectivity (Leiss, 1990; Tiles and Oberdiek, 1995; Turkle, 1995). Central concepts include the domination of nature as a means of human advancement.

> Through their engagement with the world human beings will demonstrate their superiority, show that they are set apart from the rest of nature, capable by virtue of their intellect of transcending it. The standpoint at which they aim is still a standpoint outside the world, a standpoint distanced from the object of their scientific study and of their manipulation (Tiles and Oberdiek, 1995, p. 77).

The consequences of this approach to inquiry, it is widely agreed, are profound and extensive. The Western, scientific outlook has fostered many of the technological innovations from which we benefit. In so doing, it has come to dominate so many areas that options, choices and alternative perspectives are crowded out. While a certain kind of progress has been achieved, diversity has often been sacrificed (Howard, 1994; Shiva, 1989).

Indeed, the reductionist critique is readily levelled at development approaches based on Western scientific principles. Reductionist approaches are rarely sensitive to context (Chambers, 1994; Shiva, 1989). Instead, they emphasize the oppressive force of homogenization, of the need to break down, organize and process in a linear fashion as precluding holism and diversity in thought and action. The word Shiva uses is "atomistic" which is an excellent description both of data and of digitization. She speaks of scientific emphases on "separability and manipulability" that underlie homogenization (p. 22).

Frequently, in addition to citing Bacon and Descartes, theorists attribute the concern with dominion over nature to the Judeo-Christian tradition (Leiss, 1990; Noble, 1995). In contrasting this perspective with that of the traditional Inuit cosmology, the divergence in philosophical perspectives becomes evident. While many Inuit have joined the Anglican, Catholic or other denominations, certain aspects of their cosmological perspective persist, particularly in their valuation of the land and their relationship to it. Inuit did not historically view themselves as being set above nature, but rather as one part of nature, subject to its whims and caprices. Therefore, great emphasis was placed on observing appropriate rituals to demonstrate respect for the land and waters and the animals in them that sustained life (Balicki, 1970; Brody, 1987).

Having established in broad terms some of the distinctions of Inuit world view, I would like to concentrate on several key values which Inuit have said they continue to uphold in modern times and which are directly relevant to computer-mediated communication. These are language (including the communicative mode of primary orality), and learning from their own (i.e. philosophy of education and the role of elders).

Language, Orality and Education in Inuit Culture

Integrally related to ways of thinking are ways of expressing oneself, for example through language. What is the status of the Inuit language[2] and how is it being used with computers? What are some of the precedents with other media that could be studied to determine likely impacts of the computer medium on language? How does a mode of

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[2] "The Inuit language" is how documents such as those produced by the Nunavut Implementation Commission acknowledge the presence not only of spoken and written Inuktitut but also of Inuinnaqtun in the territory of Nunavut. For purposes of brevity, in deference to the majority of speakers, and to be consistent with the terminology used in statistical reports, I will use the term Inuktitut.

expression based largely on orality mesh with one based largely on graphic/written communication (with the exception of videoconferences)?

Inuktitut is one of the strongest Aboriginal languages in Canada. According to a Labour Force Survey conducted by the Northwest Territories Bureau of Statistics in 1994, 86% of respondents claimed conversational ability in Inuktitut (NIC, 1996c, p. 198); 94% use syllabics (p. 199). Linguists consider Inuktitut to be one of three robust Aboriginal languages in Canada, including Cree and Ojibwa (RCAP, 1996, Vol. 3, p. 464).

Nevertheless, the perpetuation and strengthening of the language is a clear priority of Inuit who recognize, as do other Aboriginal peoples, the inextricable link of language to world view. For example, in a report on Sustainable Development issued by the Inuit Circumpolar Conference (1994), it was acknowledged that "the relationship between language and nature management is profound in Inuit culture" (p. 23). Certain words capture concepts that are unique to Inuit culture. Thus, it is felt that if people are to lose their language, they will also lose nature skills "since they no longer feel their unity with nature and since they are no longer aware of the need to practice a conservation ethic" (p. 24).

Interestingly, while the English term "computer" focuses on mathematical and processing connotations, the word for computer in other languages conveys more of its mythological status. In Inuktitut, for example, the word used is "karetaruaq" meaning "the other brain" (Schoffro, 1997, p. 1). Similarly in Iceland, where there is a special committee that invents new Icelandic words for technology, the term used is a combination of the terms for "tala" ('number') and "volva" ('prophet') (Swaney, 1991,

p. 57).

In its many discussions with speakers of Aboriginal languages and especially with elders, the Royal Commission on Aboriginal Peoples noted the speakers' conviction that deeper meanings of words and concepts cannot be translated into other languages (RCAP, 1996, Vol. 3, p. 463). Raymond Gagne (1968) has done much work with Inuktitut for example in the area of written standardization. He has observed that many social scientists are aware of Inuktitut's extensive lexicon for different kinds of snow and may also be aware of the lack of terminology for concentric time which reflects a primary concern with the present and the immediate past or future. Gagne has further elaborated on the tremendous complexity and flexibility of spatial concepts that locate the speaker relative to the object such that

> Eskimos are able to specify, with more precision than is found in most languages, where things and places are located, how to reach them, their attributes in relation to their settings, and so on. It is obviously vital to... develop cognitive maps [for which] language is the underpinning (Gagne, 1968, p. 38).

Inuktitut has always been a cause for defence in education, in radio and television broadcasts, in the new government or in the on-going debate in public policy. A region-wide conference, recommended by the Nunavut Implementation Commission, was held in April, 1998 to address such issues as the need for a uniform system not fractured by regional dialects and to determine whether to switch from syllabics to the use of Roman orthography as has always been the practice in Greenland. These debates demonstrate two important points: firstly, how highly language is valued and secondly, how cognizant Inuit are of the multiple sources of decay or degradation.

Language is more than just words: it reflects evolved structures of human relations and hidden rules of social participation. The implications of primary orality as a social characteristic are far-reaching. It denotes a communicative mode that is decentralized, reciprocal, participatory and personal. While writing provides distance, objectivity and separates the knower from the known (Ong, 1982), "for an oral culture, learning or knowing means achieving close empathetic communication identification with the known" (pp. 45-46). This method of sharing can be contrasted with the more solitary and passive nature of computerized interaction.

> The oral audience participated not merely by listening passively and memorizing but by active participation in the language used. They clapped and danced and sang collectively (Havelock, 1986, p.78).

The corollary of collaboration is a shared approach to learning and knowledge. The oral mindset is not acquisitive in either the intellectual or the material sense. "Sound exists only when it is going out of existence. It is not simply perishable but essentially evanescent...there is no way to stop sound and have sound" (Ong, 1982, p. 32). Orality focuses on what is known as opposed to speculating and it encourages sharing of information rather than personal expansion of knowledge.

Katsh (1989) has drawn a parallel between the conservatism of orality and that traditionally required by juridical law to ensure slow and methodical evolution of the body of law (p. 21). He argues that computer-mediated communication may change basic assumptions about the way the law functions, because they offer unlimited access to an extensive body of precedent and they permit modification with such ease that the pace of change of the law may challenge the stability of precedent as a point of reference. What

is at issue here is a challenge to the traditional basis for authority and method of operating. The implications for human relations in largely oral societies are obvious.

If the rise of literacy serves to denigrate the role of elders as suggested in chapter two – and elders are central figures in the transmission of knowledge – any technology which places a premium on written communication would tend to have a similar effect. Ong (1982) and Lord (1991) have both remarked on the consequences of the emphasis on literacy, saying that if the people who were traditional teachers begin to lose prestige, their modes of passing on knowledge, such as songs and stories, may eventually disappear.

All of these forces suggest an erosion of traditional bases for respect and accordance of authority, but also for culturally distinct means of passing knowledge on through the generations. The method is of at least as much importance, as Aboriginal perspectives on education demonstrate.

Frances Abele has emphasized the importance of holistic approaches in Aboriginal employment training. "Skills, attitudes, behavioural norms, historical and philosophical knowledge are all seen as related, and they are usually conveyed 'of a piece'"(Abele, 1989, p. 34). Furthermore, she notes there is less sanctity for the role of student and teacher, and learning happens through encounters with a wide range of participants.

In fact, the historically central role of Aboriginal elders in the education process is undergoing a sort of renaissance in many settings, along with greater concern for the presence of Aboriginal languages, Aboriginal teachers, curricula and so forth (RCAP, 1996, Vol. 3, p. 455). The three issues which many believe most important for Aboriginal

education are unquestionably germane to an assessment of computers, namely "a curriculum that instils a proud Aboriginal identity and competence as an Aboriginal person; language education; and Aboriginal control and parental involvement" (RCAP, 1996, Vol. 3, p. 456). It would be facile to argue that computer-mediated communication is antithetical to all three.

For example, English usage both in education and in television broadcasts was found to create an intergenerational gap where children and their grandparents could not communicate (Brody, 1987). The sense that Inuktitut may be swamped by English persists.

> Although great efforts have been made in the Northwest Territories to promote Inuktitut in education and in official communications, there are those who warn that Inuktitut is no longer immune to the effects of displacement and erosion that have claimed Aboriginal languages in the South. True, Inuit can find Inuktitut content...but its impact is certainly lessened by the overwhelming glut of popular English programming (Wilkin, 1998a, p. 5).

The wealth of the Internet, for example its usefulness as a research tool, lies predominantly in English sites. Hanson Lau reports (at Making the Links: A Critical Look at Community and the Internet, 5th Annual BC Library Association Information Policy Conference, Vancouver, March 21, 1997) that 74% of world-wide websites are in English, 14% in European languages and 12% in Chinese, Japanese or Korean. Another finding suggests that up to 80% of the electronic mail on the Internet is in English ("Sowing the seeds," 1997). It is true that Inuktitut fonts were being used in word processing even back in the 1980s (Roberts, 1986). However, even though some sites are accessible in Inuktitut, the influence will always be in the direction of English.

Some have found or developed ways to use computers to support language learning. Mick Mallon who teaches Inuktitut with Alexina Kublu at Arctic College in Iqaluit has developed an interactive program that runs on the Macintosh and allows students to work at their own pace in learning grammatical constructions and proper pronunciation. However, "there are no quick and easy ways to stimulate or promote the use of Inuktitut in relation to computer use" given the "English bias of the computer industry" (Balka, 1996, p. 7).

One of the uses of electronic communication already noted is for intercultural exchanges among students from different parts of the world. Inuit children are learning more about other cultures, and in turn they share what they feel is important about their culture and debunk myths of Eskimos and igloos. It is possible that this process strengthens a sense of collective identification and allows for a new form of story-telling, albeit focussed on an external audience.

On that note, I would like to focus briefly on the question of internal versus external audiences. Interestingly, Rosemarie Kuptana has been quite supportive of the information highway saying "it is only technology, but if done right, it can help to portray the spirit of the people and the land" (Kuptana, 1994). Initially, I used this citation unproblematically as an indication of determination and optimism about the potential for putting information technology to Inuit-determined ends.

Professor Murray however noted that "portray" was an interesting choice of words; an observation which raises an important question about intended audiences. Indeed, much of the cultural content of Inuit websites seems to be dedicated to the admittedly

necessary task of public education and stimulation of tourism; in other words attempts to define rather than to live the culture. George Baldwin of Henderson State University suggests caution in this perpetuation of on-line cultural tourism.

> Indian people, like Americans in general, have become consumers of information about themselves with few of us actively engaged in the production...the overwhelming presence of non-natives in the newsgroups and listserves...has made many Indian people passive viewers about conversations about themselves! (Baldwin, n.d., Henderson State University).

While computers might be said to signal the onset of a secondary orality as they move away from a reliance on published text, the medium remains heavily based on text even if it is more extensively visual and accommodating of interaction. Therefore, the question of whether its own biases will impact negatively on the foundations of particular cultures inevitably throws one back to the precedents of previous media. It is too soon to make pronouncements about the consequences of information technology for cultural perpetuation but given all of the barriers to access discussed previously, it is likely that cultural barriers to exploitation of the technology will persist for some time. In the case of culture broadly speaking, it may be that barriers have a protective effect as well.

With regard to identity formation and expression by individuals, there are very few protective barriers against the risks inherent in computer-mediated communication. The metaphor that prevails here is that of foundation rather than of barriers. In the next section, I will demonstrate the relevance of foundations both to culture and to theorists' notions of identity and interpersonal exchange.

Identity Formation

Computers offer an opportunity for theorists to study the ways in which people

choose to express themselves when freed of the contextual markers of body, voice and social situation. Computers may encourage social interaction that is more purely cerebral and imaginative, less founded on clear referents in the real world. In the following discussion, I will outline some of the major intersections of postmodern theory with information theory. Once again, it will then be my goal to connect what can be rather esoteric theory at times to the very real context of computer use by Inuit in Nunavut.

The reference points of history and underlying philosophies which I have used as a framework are scorned by the theory of postmodernism which many cite as indispensable for an understanding of the interaction of identity with computers (Coyne, 1995; Turkle, 1995; Webster, 1995). A postmodernist perspective is less concerned with revealing truths than with an appreciation of the free-flow of messages and images in their own right. There are no correct interpretations of texts or situations when the foundation on which these arguments are built – that of language – is itself unstable.

According to Coyne (1995), Derrida's deconstruction of the endlessly referential nature of language challenges the notion of a demonstrable truth, positing instead a shifting, subjective and only temporally-relevant concept of meaning. Language confuses as much as it elucidates. Through the polysemic nature of words (multiple meanings) language shows its plastic unreliability. In a hermeneutical reading, the process of ascribing significance is entirely personal and subjective. As Webster concludes in his discussion of Barthes, Baudrillard and postmodernism "there is no authenticity: there are only (inauthentic) constructions of the authentic" (Webster, 1995, p. 171).

Coyne describes some of the ways in which the signs conveyed by computers are

also unreliable. There is the capacity for endless reproduction of sound, text and images which threatens the concept of authorial responsibility. There is a contextual paucity that creates uncertainty about what the sign is signifying. And, there is some question of whether intention should be ascribed to authorial work. In sum, Coyne suggests that postmodernism's insights relate to "reproduction, the rupture between sign and signifier and the dissolution of the spectrum of meaning and truth" (Coyne, 1995, p. 106).

Turkle (1995), who is perhaps most concerned with issues of identity, describes postmodernism's relevance in terms of its challenge to assumed conditions of veracity or authenticity. Her assessment of postmodernism is more positive than that of Coyne, who rejects it on grounds of relativism, or Webster (1995), who argues ironically that there is no way to prove its validity. Turkle acknowledges the dangers associated with computer-mediated communication including the possibility of addiction and the sense of betrayal felt by those who discover they have not been corresponding with whom they thought they were.

However, overall, Turkle sees positive possibilities in the culture of simulation which she argues is fostered by applications such as MUDSs (multi-user domains in which sophisticated games involve the creation of characters and interaction in imaginary spaces). "The anonymity of MUDs gives people the chance to express multiple and often unexplored aspects of the self, to play with their identity and try out new ones" (Turkle, 1995, p. 12).

She too characterizes postmodernism as 'decentred,' 'fluid,' 'non-linear,' and 'opaque' (Turkle, 1995, p. 17). But she believes this kind of thinking exercised in computer-

mediated communication can open a space for people (often women) who are more artistic and less methodic in their learning styles. Not surprisingly she contrasts these approaches with the modernist view of reality, described by her and others as 'linear,' 'logical,' and 'hierarchical' (Turkle, 1995, p. 17).

The fluidity of identity does not pertain exclusively to phenomena such as MUDs and Internet Relay Chat (a real-time computer-mediated form of communication). Rather it is a general and pervasive characteristic of computer-mediated communication. The absence of co-presence, visual and aural cues precipitates compensatory tactics such as verbalization of actions or symbolic depictions of emotion.

The freedom of computer-mediated communication affords experimentation with identity, veracity, authenticity, or what Stone calls warrantability (Stone, 1995). She sees this as an extension of accountability, in that when communicating on-line it is not always possible to affirm even that there is a human entity associated with a particular message, much less that the projected identity corresponds to an objective reality.

Media such as radio and television which distance one from the source also lend a veneer of authority or authenticity. In gaining freedom from these filters, one loses customary assurances. Friedman (1995) notes that even recent analyses from the fields of film and literature, which deal with questions of authorial intent and textual interpretation, have not yet addressed the ways in which computer communication may change notions of reader and text. In one view, an understanding of computers would comprise "the discourse of analytical philosophers' quest for truth and validity through algorithm, critical theory's political scepticism, technological determinism's hope for the global village,

Heidigger's Gelassenheit and Derrida's deconstruction" (Coyne, 1995, p. 142).

Stepping back from these attempts to explain and analyze a new phenomenon, one realizes that the implicit understanding of technology, and indeed of human communication, is rather sophisticated. Even when the prerequisite for participation is confined to language and computer literacy, the necessary proficiency is quite extensive. Stone notes that "entry to the world of virtual communication requires high levels of skills in the English language and a high level of technical proficiency" (Stone, 1995, p. 181) which renders the notion of on-line egalitarianism an illusion.

There is an assignation of prestige that accompanies strong language skills. Just as in the real world," the ability to use words to create context by describing imagined actions and environments is one key to high social status" (Rheingold, 1993b, p. 182). Part of the ability to use words is "creativity, quick thinking, imagination, and either a literary sensibility or the style of a stand-up comedian" (p. 182). Not only are these daunting requirements, but they carry with them a heavy cultural baggage: the willingness to engage with information in these ways would imply that what is most important to the participant is the play and possibilities of meaning.

In summary, postmodernism's stress on playfulness and superficiality, on the irrelevance of actual circumstance, is relevant to a medium where little can be verified and therefore must be taken either at face value, filtered through one's own knowledge system, or assessed against other sources. Some champion the foundationless nature of computer-mediated communication, its lack of ties to authentic origin, as a new arena for the autonomous creation of self. But others may find the inherited foundations of their

culture to be at odds with this new form of computer-mediated communication which demands no self-identification and no clear affiliations.

While identity can be fluid and notions of identity equally so, the contexts into which computers are introduced are real. In context, computer users may have a well-defined if not necessarily articulated sense of what constitutes a solid foundation for communicative exchange. For example, culture may be argued to be the basis upon which identity and self-esteem are built. In one of the first reports that ever attempted to explain northern Aboriginal cultures to a wider audience, Justice Thomas Berger (1977) reflected what he had heard during the inquiry into the proposed Mackenzie Valley pipeline by describing the inseparability of northern peoples from the land as the "foundation of [their] sense of identity" (p. 88).

Story-telling, like the metaphor of foundation, binds elements of ancient oral traditions to postmodern conceptions of what it means to relate to one another. They might seem to be quite compatible, and yet stories in the first instance were always told in context, by people who were generally known, about people or situations that were familiar. "Thus the meaning to be drawn from an oral account depends on who is telling it, the circumstances in which it is told, and the interpretation the listener gives to what has been heard" (RCAP, 1996, Vol. 1, p. 33).

If these conditions can be recreated via computers, for example two people who are known to each other communicating about familiar issues, then what has changed is only the circumstances in which the story is told. If none of the known cultural referents are present however, it is hard to see how computers could strengthen language, culture or

personal identity.

Conclusion

A great deal of theoretical terrain has been traversed in this chapter incorporating development and democracy theory, theories of world view and postmodern, psychological insights on identity formation. The common thread between these sections is that they are each facets of a conception of computers that sees them as tools for use in community or individual development. Each section considered the arguments of those who would see computers used in these ways, as well as the counter-arguments of those who believe the risks and biases inherent in the technology itself outweigh any potential benefits.

It has been shown in each chapter that the Inuit approach to managing communication issues has grown from a heightened awareness of the cultural interplay of language and values with particular media. The question of awareness continues to be especially relevant in analysis of the potential of computer-mediated communication.

There are consequences to all networking and computer design decisions whether or not there is a consciousness of effects (Balka, 1997; Coyne, 1995). Understanding computer networks as designed architecture conveys the sense of a structure that is open to limitless possibilities in its conception, but soon takes on greater rigidity, exponentially reducing subsequent options. "For many users, both the physical structure of the network, and the social decisions incorporated into the network through software design, are invisible" (Balka, 1997, p. 70). This concept of invisibility will guide the conclusions of the following chapter.

The role of technology in Inuit society defies a tendency toward invisibility that is

prevalent in more extensively technological, constructed environments; this unusual prominence is a considerable advantage for developing a broader understanding of technology. I will argue that the collective awareness of the technology must filter down to the level of the individual if the Inuit tradition of balancing modern technologies with culturally-specific values is to continue.

CHAPTER 5:

CONCLUSION

A reliance on technology is one of the characteristics of modern societies. Humans have sought to exploit nature and to end their vulnerability to it (Leiss, 1990) by developing a technological infrastructure which is so pervasive it ceases to be regarded as technique and itself becomes naturalized. Information technology is particularly prone to disappearance as its basic stock in trade is immaterial. Philosophical invisibility is an extension of a prevalent scientific attitude that seeks mastery over nature (Carey, 1992). The invisible workings of computers, their integration into other machines (Postman, 1992) and their concealment of prior design decisions, all contribute to a sort of standard status or scenario against which to assess the significance of technology in a particular context.

Inuit society has also been very reliant on technology but has never lost sight of that reliance. Inuit have seen and fought against the ways in which technology changes relationships and communication patterns. As well, Northerners are constantly brought back to a consciousness of technology by its more frequent failure and their vulnerability to extremes of climate and geography. In these concluding pages, I will again take up the significant question of Inuit awareness and relationship to technology in order to suggest that while Inuit collectively have maintained a generally high level of awareness of technology, there is still a need for a broader understanding at the level of the individual and away from the arenas of collective policy development.

Presence and Awareness of Technology

Typically, technologies are introduced as novelties and the accompanying rhetoric is curious, optimistic, speculative and enthusiastic. During this stage, technologies are most apparent and most likely to be scrutinized. With diffusion, however, technologies begin to blend into the background of everyday life. Soon the once-novel technology gains the status of a necessity and the questioning of its use and place subsides. The isolated cases of the telephone or automobile are good examples. However, theorists tend to stress the all-encompassing nature of technology, its infrastructural and ideological permeation.

> The early phase of technology often occurs in a take-it-or-leave-it atmosphere. Users are involved and have a feeling of control that gives them the impression that they are entirely free to accept or reject a particular technology and its products. But when a technology, together with the supporting infrastructure becomes institutionalized, users often become captive supporters of both the technology and the infrastructures (Franklin, 1992, p. 97).

In effect, Franklin argues, we live not in the natural world but in a technological surround that encloses us like a house. This artificial environment effects pervasive social change from one generation to the next. The sense of transition or loss is not acute because "changed relationships appear so normal, so inevitable, that they are taken as given and are not questioned" (Franklin, 1992, p. 12).

The gradual insinuation and envelopment of technology blinds users to its presence. Unaware of the ways in which choices are constrained by the adoption of certain technologies, people in the workplace and in schools, for example, find themselves compelled to conform to the requirements of the technological system. The normalcy of

the technological environment is in itself a profound statement about modernity. Yet according to philosophers Tiles and Oberdiek (1995), technology and its problems seem to have been ignored or invisible as a philosophical discipline until quite recently. They suggest that technology's seeming invisibility even in times of intensive industrialization becomes "a bit less mysterious if we reflect that many technologies take their place comfortably *as part of the ordinary everydayness of our surroundings*" (p. 126).

Star has argued that it may in fact be impossible to take a step back from technology in order to study it effectively. "Because computers are at once intimate and personal, tied up with work, education and entertainment, they may be so woven into the fabric of our lives that 'standing back' is completely an illusion" (Star, 1995, p. 8).

An instructive parallel can be made with the study of orality. The mind is so conditioned by literate thinking that it must transcend its learned mode of operation to comprehend the state of orality (Innis, 1951; Ong, 1982). The transition from orality to literacy suggests other instructive parallels. As with other communications media, it is not a question of replacement but of accretion and synthesis. In most cultures, the significance of the transition to print is lost to time, and the ways in which orality structured thinking and social organization subsided without our being aware. This should not be the case with more recent innovations, but many argue that it is, particularly where communication technologies are concerned (Carey, 1992; Mattelart, 1994). Unfortunately, the newest technologies always tend to be seen as a "radical departure from previous historical patterns" (Carey, 1992, p. 181).

Others have joined the plea for a historical perspective, cautioning that claims for

computers are exaggerated and that core communication issues (substance, domination) remain unchanged (Roszak, 1986; Jones, 1995). One must restore computers to their historical lineage; otherwise, by appearing all around us and yet appearing to come out of nowhere, computers assume an omnipotent quality.

The progressive envelopment of humans by technology is an important theme in the social history of modern industrial society as is the degree to which altered social patterns are quickly normalized and so go without comment or conflict. It is easily forgotten that historical precedents of technology are relevant and necessary for a realistic assessment of their successors.

Each of these observations has direct relevance in a northern context and serves to suggest reasons why technology has remained more visible to Inuit than to others. The material reality of technology has never become so fully integrated into Northern communities that it has disappeared from sight. The alteration of social patterns as a result of technological change has been observed, struggled with and debated by Inuit leaders and laypeople. Finally, it is upon the basis of lessons learned with previous communication media that Inuit will go forward to deal with computer-mediated communication.

The Need for a Broader Understanding

As I demonstrated in chapter two, those who would continue the quest to exploit new communications media in ways that are mindful of Inuit values must do so in new technological and geo-political environments. This time of optimism, concern, uncertainty and turmoil is a critical juncture in the history of the North. In studying the entree of

new communication technology into a society which is highly sensitized to the importance of language and cultural values in the careful management of communication media, I found that although the priorities may remain the same, the specific strategic policy response may need to be adapted to the current circumstances. I would like to review briefly the arguments I have presented in order to support several concluding recommendations.

Tracing the history of Inuit mobilization around political and communication issues, I have shown that Inuit possess both the will and the ability to directly shape the development of policy. The momentum of this tradition of active involvement has carried into the initial stages of the introduction of computers; yet the collective policy formation and lobbying which have been used in the past do not seem to be having a significant influence on the introduction of computer-mediated communication.

I have cast the prevailing perceptions of information technology in terms of divergent objectives. On the one hand, we have business and government interests who are unanimous in their support, praise and expectations of computers, regarding them primarily as commodities with which to leverage greater economic competitiveness and administrative efficiency. On the other, we have those who would use computers for community development and cultural perpetuation but who at the same time have reservations about the risks of engaging in this decidedly two-way medium.

The concerns and issues relating to culture and language have been expressed in the public domain. However, as I demonstrated in chapter three, the development of infrastructure under the supervision and with the funding of the current territorial

government reflects nothing of these special considerations. In short, the historic approach that focused on telecommunications infrastructure still takes precedence over more basic concerns such as the likelihood and ability for widespread use by community members.

There are several means by which Inuit could continue their tradition of analysis and adoption of new technologies to include computer-mediated communication. There have been sporadic efforts made in this direction, but as the infrastructure marches forward, the community mobilization does not seem to keep pace. The sporadic efforts and the communication tradition are both sources of hope. Inuit communities should build upon their considerable strengths, for example by acting to further heighten the unusual awareness of technology and communication media that has developed over time. Their tradition of community mobilization must also be tapped in order to carry forward the struggle with the new medium of computers.

I would like to propose three practical, small-scale objectives. First, I believe that any training that is offered for computers should include a critical component or module on the theory of information technology. This need not be as esoteric as some of the theoreticians I have cited, but could draw on principles such as those I have used to consider the computer's many roles as a thing, as a means to an end and as a cultural conduit.

Such an educational module would be based on the assessment of students' own perceptions of technology in their lives and communities as well as their expectations and encounters with computer-mediated communication. Rather than focus on keyboards and

commands – as the current Arctic College "Computer Literacy" course does – this would entail a different kind of media literacy. It is the kind of awareness that leads to critical autonomy where students come to appreciate that "media are symbolic (or sign) systems which need to be actively **read** and not unproblematic, self-explanatory reflections of external reality" (Masterman, 1985, p. 20). These skills are especially germane to a medium where verification can be difficult and is frequently irrelevant as when experimenting with different personalities or characters in an on-line forum. The implementation of this recommendation would be relatively simple and low-cost. The module could for example be developed by the Inuit Broadcasting Corporation for use by Arctic College as an adjunct in its computer training.

The second recommendation hinges on the tradition of community activism. The proposal for community teleservice centres was admittedly flawed in many respects including its overestimation of the necessary technology and its underestimation of the training and technical support required (Balka, 1996). However, it did acknowledge the critically important fact of the multiple barriers to access which will not simply be solved by the addition of a high-speed digital communications backbone. Many of the principles underlying the proposal should be embraced as fundamental precepts for the introduction of computers if they are to serve in any way as tools of social justice, community and personal development. Having a central point of access – even if it is just the local school – would knock down hardware and software barriers and provide some kind of personal support to would-be learners. It would work against the isolation and alienation that can accompany solitary learning and work on computers, making them instead a part

of a larger community effort to advance learning.

As Balka has noted of common computer access points in Newfoundland, they frequently served the unintended but nonetheless beneficial purpose of helping people learn basic literacy when they were motivated by the possibility of access to computers (Balka, 1996, p. 4). Given the additional demands this would place on designated support people, community members should be involved. Volunteers could assist with the more basic questions and learning difficulties. The participation of community members in the Connecting the North Symposium and their expressed desire to carry on with this involvement (IBC, 1995) could be quite a significant resource.

Finally, once the new Nunavut government comes to power, it should actively continue to support the work the Inuit Broadcasting Corporation began with the symposium in 1994, possibly by funding an annual conference to review the status of computer-mediated communication throughout Nunavut. The original forum brought communities together in discussing their findings and experiences. This kind of shared information will be particularly important when the municipal-area networks become active. If the Nunavut Implementation Commission has not succeeded in furthering its proposal of community teleservice centres, the new government can still re-open the question of improving access by its citizens and creating learning opportunities.

In summary, I suggest that at the level of the individual, media/computer literacy is needed; at the level of the community, shared access points are essential; and at the pan-Nunavut level the proven ability of an organization like the Inuit Broadcasting Corporation to coordinate and focus discussion and commentary should be fostered by

government to promote concerns which go beyond its own purview.

While the world debates the implications of information technology, Nunavumiut have special experience in this domain. Just as explorers, traders and adventurers fancied themselves frontiersmen despite the presence of Inuit who had been in the North for millenia, so in some ways do the many complex questions raised by contemporary communication technology serve merely to magnify issues already familiar to Nunavumiut. There are many possible, creative uses of computer-mediated communication such as those outlined in chapter four. It remains to be seen what uses Inuit resourcefulness will make of computers.

Commentators frequently observe that the unique aspects of Inuit culture, of life in the North, and of the profoundly significant drive for self-determination extend far beyond regional concerns in their implications (Brody, 1987; Cameron and White, 1995; Roberts, 1983). Indeed, issues such as the environment and the Inuit relationship to the land, the search for meaningful and adequate jobs that co-exist with aspects of traditional life, the emerging and strengthening Aboriginal presence in Canadian politics are all indicative of broader social and political issues.

In closing, I suggest that Inuit experience with communication media, their sensitivity to the concomitant cultural issues, and their deliberations over the introduction of computers serve to highlight many of the most interesting issues posed by information technology. In developing an analytical framework that is based on qualitative assessment, I contend that the resulting awareness of technology may be more acute and so useful to planners, students, and users of information technology in the North. The

foregoing is one response to the generally acknowledged need for on-going assessment and learning about technology in specific cultural contexts.

APPENDIX

Integrated Recent Communications/Political Chronology

1971 - The Inuit Tapirisat of Canada was created and included among its goals the betterment of communication and the preservation of Inuit culture.

1972 - Although Inuktitut broadcasts by shortwave radio began in 1960, by 1972 there was still less than 20% Inuktitut content.

1973 - Anik satellite system in place. Inuit Tapirisat of Canada (ITC) supported objections to CBC's plans to provide television to the North without context-relevant content.

1976 - ITC tabled the first of its proposals for land claims settlements in the NWT.

1978 - The 3-year Inukshuk project began to provide an opportunity for selected Arctic communities to use satellite broadcasting (Anik B) and to train Inuit in media.

1980 - The CRTC Therrien Commission provided the impetus for the creation of a Northern Broadcast Policy, issued three years later.

1981 - The Inuit Broadcasting Corporation was licensed as the first native-language TV station in North America; southern commercial television via Cancom.

1982 - Plebiscite on division of NWT finds in favour.

1983 - The Northern Native Broadcast Access Program provides subsidies.

1991 - Budget cuts reduce native communications societies and heighten need for funds.

1992 - Plebiscites to decide on specific boundary lines and to ratify acceptance of Nunavut. Television Northern Canada begins.

1993 - Nunavut Act passed, allowing for creation of a new public government.

1994 - Connecting the North Symposium on the information highway.

1996 - GNWT Request for Proposals to provide high-speed digital backbone for NWT.

1997 - Future of Work Conference held and GNWT contract awarded to Ardicom.

1998 - Proof-of-concept accepted and roll-out of new communication infrastructure begins.

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IMAGE EVALUATION
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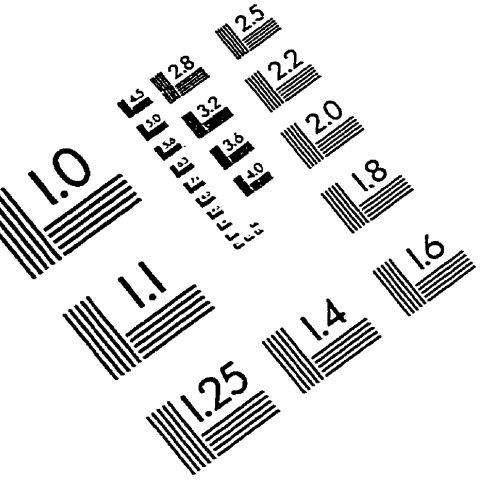

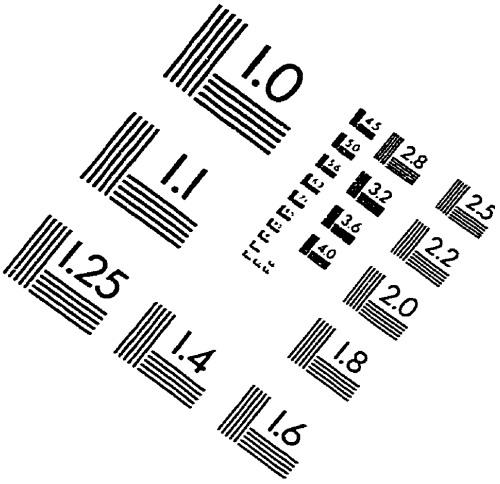

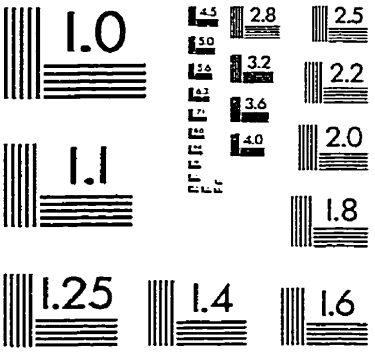

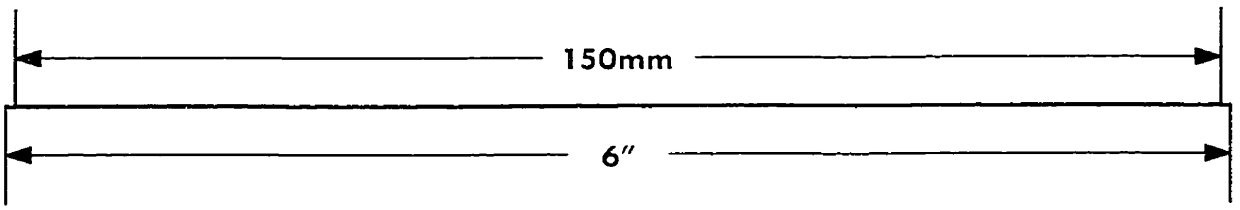

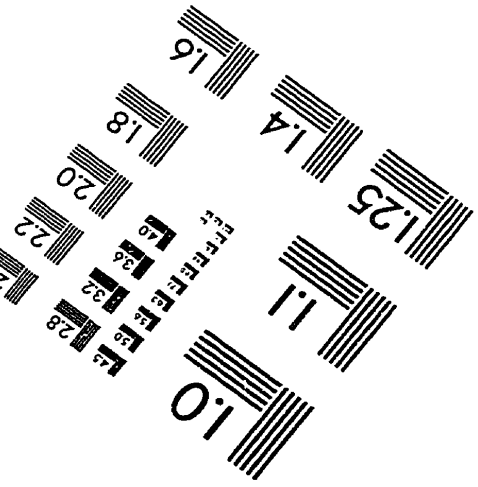

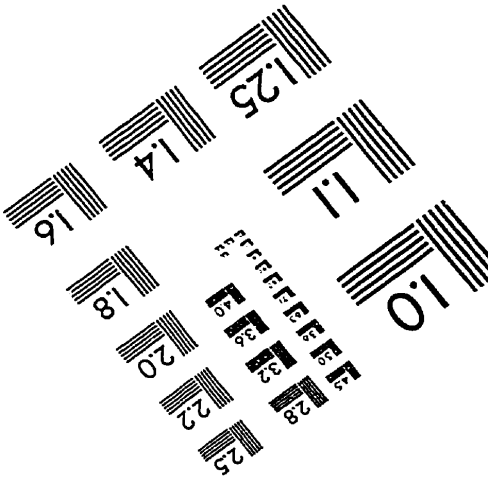

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