



**Literacy and Health:
The Importance of Higher-level Literacy Skills**

A Discussion Paper for Inuit Communities

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January 2006

Literacy and Health: The Importance of Higher-level Literacy Skills, A Discussion Paper for Inuit Communities

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ISBN 0-9736489-9-6

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OAAPH [now known as the National Aboriginal Health Organization (NAHO)] receives funding from Health Canada to assist it to undertake knowledge-based activities including, education, research and dissemination of information to promote health issues affecting aboriginal persons. However, the contents and conclusions of this report are solely that of the authors and not attributable in whole or in part to Health Canada.

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EXECUTIVE SUMMARY

The purpose of this paper is to discuss the importance of high-level reading skills in health decisions, healthy lifestyles and healthy communities. Health, literacy and education levels are concerns in Inuit communities. Information about the foundations, process and effects of good literacy skills may enable Inuit communities and decision-makers in the development of policies and programs that improve literacy and education, leading to improved holistic health.

Health refers not just to lack of physical illness. It also includes a broad range of mental, emotional, spiritual, and social factors. A variety of social factors have been shown to affect health (education, employment, access to services, housing, etc.) and Inuit goals relate to all these health factors. Good literacy skills are necessary for the knowledge that is required to achieve these goals.

People with lower levels of literacy have lower levels of health. Health literacy and adult literacy programs focus on providing information and skills for those who have lower levels of literacy and language skills. These are essential services that will increase people's ability to make better health decisions and live healthier lifestyles. It is crucial that plain language information and education in all health issues is available, in both Inuit languages and English or French, so that everyone has the main important information they need, no matter what their education and language skills.

However, basic level and plain language reading skills are not enough. To obtain the most information, and understand and use it in the best ways, a person must have high-level literacy skills. High-level literacy includes the ability to read quickly and easily without having to pay attention to each word. More importantly, it involves the ability to understand the ideas that are written, and to make connections between different information and ideas. The ability to understand and use a wide variety of knowledge is essential for the best personal and community health.

Good-quality formal education is the major tool in the development of high-level literacy in the modern world. People with higher levels of education tend to be healthier, most likely because they have more knowledge and a greater ability to use that knowledge in a wide range of situations and problems. Good literacy is also a requirement in many of today's jobs, whether they are practical or professional. The increasingly complex reading and learning activities of high-quality formal education provide a strong base of knowledge and develop the thinking skills that are necessary to use knowledge effectively in our lives.

The wide range of modern knowledge is available mainly in writing. For Canadians, it is available in English or French only. Reading, however, is best learned initially in the language of home. For many Inuit this means Inuktitut, and an important goal in Inuit communities is to keep language alive. Education systems in Inuit communities should

therefore provide the learning opportunities necessary for developing high-level literacy in Inuktitut and English or French.

Good literacy has its roots in early childhood and in the home. Inuit communities are already focusing on early childhood development. Continued efforts to provide parents with information and encouragement will enable them to build the foundations of good literacy skills for their children. Good reading skills cannot be built in school alone. Reading must be a way of life. It must not only begin at home but be continually encouraged and supported at home and in the community.

There are two important elements in literacy development: 1) learning to read, and 2) becoming a reader. Research has shown that learning to understand the relationship between sounds and written letters is the best way to first learn to read. However, learning *how* to read is not enough. In order to become a fluent reader who really understands what we read, we must read a lot. Children who are surrounded by books and given many opportunities to read and write develop the best literacy skills.

The invention of written language enabled humans to accurately store even the most complex memories and knowledge. And reading enabled anyone to access that knowledge, anytime, anywhere. It freed us from depending on anyone else to give us information, and it freed us to acquire and use the knowledge we feel we need, regardless of what others might think we can and should know. The long-term goal of high-quality literacy in Inuktitut and English will enable Inuit to make maximum use of the knowledge that is necessary today in developing and maintaining communities that are healthy in the most holistic sense.

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Literacy is one of the major influences of health status. However health is defined or measured, people with limited literacy are worse off than others with higher literacy skills. Literacy is a major factor underlying most other determinants of health (Health Canada, 2003: 3-4).

INTRODUCTION

There has been a large amount of research regarding the importance of literacy as it relates to individual, family and community health. Although more research is needed as to how and why literacy levels cause negative health outcomes, the evidence from Canada, the United States and around the world shows without doubt that lower levels of literacy are connected to problems such as:

- poverty, unemployment and low-level employment (which create health risks such as poor housing, inadequate nutrition, stress, etc.);
- crime;
- social problems such as teen pregnancy;
- poor coping skills;
- problems in early childhood care;
- physical health risks and medical problems;
- accidents and injuries; and,
- mental wellness problems.

Factors that have been identified as having the most important effects on health include: education; income and occupation; environment and housing; community and social support systems; and access to appropriate services. The need for and impact of literacy skills cuts across all these determinants of health. The better a person’s literacy skills, the more likely they are to have a better education, housing, income, mental wellness, etc., and therefore better health.

A major international study on adult literacy and life and employment skills (Organisation for Economic Cooperation and Development et al., 2005: 5) states,

“Change is a defining feature of modern life. Technologies change, the organization of work changes, terms of trade change, communities evolve and social roles change as individuals negotiate the life course. Hence change is unavoidable. It obliges individuals, families, schools, firms and nations to adapt. People and institutions that have the ability to adapt are resilient; they survive and have a chance to flourish. In contrast, those lacking the ability to adapt become vulnerable and dependent. The ability to change depends, to a large extent, on the pool of skills upon which individuals, institutions and nations can call.”

A major change has been the need for high literacy, and in discussing literacy and health, the report says that, “literacy may be a contributing factor to the wide disparities in health care that many adults in the United States and elsewhere receive” (OECD, 2005: 250).

Research shows that many people do not have the literacy skills required to deal adequately with expectations in the 21st century. Almost half of all Canadians have problems reading and understanding the written information they come across in everyday life (Health Canada, 2003). The Department of Indian and Northern Affairs’ Royal Commission on Aboriginal Peoples (1996) found that Aboriginal literacy rates generally are even lower: Aboriginal youth drop out of school at much higher rates than non-Aboriginals. Inuit Tapiriit Kanatami (2004) states that 59 per cent of Inuit have not finished high school. In specific Inuit regions and communities, the rates may be even higher.¹

High-level literacy skills, not just basic literacy, seem to be the important factor in all social determinants of health. The actual level of education itself is also not the crucial element. It is possible, for example, to graduate from high school with low-level reading and writing skills.² Research shows that what matters is the level of literacy that is supposed to come with higher levels of education. Formal education is the most important tool for the development of full literacy in today’s world because each year of education is supposed to involve more complex reading and comprehension tasks.³ High-level literacy makes it possible for people to have the knowledge and the understanding they need for education, employment, and coping skills, and provides the best foundation in making healthy life choices.

Poor reading ability is a concern in Inuit communities. In Iqaluit, Nunavut, for example, teachers say that three-quarters of Grade 8 students read below their grade level.⁴

Research shows that poor reading leads to increasingly poor school achievement. The student has more and more difficulties and drops farther behind as the reading and comprehension expectations increase each year.

“Good language and literacy skills lay the foundation for social, academic, economic, personal and national success. Moreover, such skills are cumulative – success builds

¹ Iqaluit District Education Authority research, for example, shows that Nunavut has the highest drop-out rate among all provinces and territories, three times the national average. Younger-Lewis, G. “Iqaluit DEA tackles dropout rates.” Nunatsiaq News, April 29, 2005.

² Being in a certain grade does not mean a student reads at the level considered appropriate for that grade. People who read a lot on their own may read better than what is normally expected, while others read more poorly than expected. A recent Globe and Mail article (September 22, 2005) says that more and more students are arriving at university without the basic reading, writing and mathematics skills they need. Some are unable to pass a simple English test even though they may have graduated with high marks in English. Ontario has recently set up literacy tests for high school students who are close to graduation. This was necessary because it became evident that graduates were having problems with post-secondary literacy expectations.

³ People with learning disabilities or developmental delays have special problems, but appropriate education strategies can improve their skills.

⁴ Younger-Lewis, April 29, 2005.

on success, while falling behind at an early age creates increasingly difficult challenges” (Jamieson and Tremblay, 2005:1).

Modern definitions of literacy generally include different types of communication skills, rather than just reading and writing. However, worldwide, it is reading skills that are used as the general measure of literacy; and it is poor reading that is associated with poorer health outcomes.

Written-language literacy includes more than the basic ability to read and write words. High-level literacy includes two essential skills. The first is the ability to read quickly and fluently without having to pay conscious attention to each word. The second and most important is comprehension – the ability to understand the meaning of the writing. Comprehension involves a number of thinking skills which are essential in the ability to use information, make decisions and solve problems.

Rudd (2001) says,

“Reading is part of a complex phenomenon. As people develop literacy, they develop a number of other skills, including reading for meaning (vs. decoding of individual words), ability to describe with accuracy, ability to give and understand instructions without relying on face-to-face interaction and shared context, a large working vocabulary, and an understanding of abstract concepts. All of these issues are of critical importance to this new idea of health literacy.”

Raising literacy rates and improving education are a major focus of the federal and provincial governments, Aboriginal organizations, literacy organizations, and educators. Inuit Tapiriit Kanatami stated in the Aboriginal Peoples Roundtable discussions (2004), that, “Literacy is the cornerstone of education, and includes not only reading and writing but the fluency to be able to communicate fully ...[in] their traditional language as well as English/French” and that, “In consultation and partnership with Inuit organizations, regional and local school authorities, the federal government and territorial or provincial governments, there is a need to initiate a major examination of the northern education systems, with emphasis on the drop out rate and the overall quality of education.”

The purpose of this discussion paper is to suggest that an essential and high-priority long-term goal be the development of high-level literacy in Inuit communities. We know that the higher a person’s literacy level, the greater the chances that they will be healthier. We know that research shows clearly that the development of good literacy skills must have its roots early in life. We know that development of good literacy skills depends on frequent and increasingly complex literacy experiences throughout childhood and youth. We know that the ability to use written information effectively depends on comprehension, and that comprehension of increasingly complex written information depends on opportunities to read increasingly complex material. Higher-level literacy skills make it possible to acquire and understand more complex information, and to understand how different pieces of information fit together. As a result, we may have a more indepth understanding of the broader principles of health. Formal education that develops reading comprehension and thinking skills,

combined with a public health approach that incorporates culture-relevant community involvement, are the main tools for improving health literacy and the decision-making that leads to behaviour change.

In examining this issue, we will identify types of literacy and literacy programs, look at the evidence regarding literacy effects on health, and discuss the issue of learning styles. We will identify the thinking skills that are essential for comprehension of health knowledge and look at the processes that underlie reading, learning, memory, and thinking skills. This discussion may help Inuit communities in making decisions about the education and literacy goals that will contribute to improved personal and community health.

DEFINITIONS

Literacy

There are several definitions of literacy and different kinds of literacy programs. Health literacy is itself a relatively new and important area of concern.

In the past, literacy has been defined simply as the ability to read and write.

Today, literacy is usually defined much more broadly. Although there are many specific definitions developed by different groups, it is generally considered to be the ability to find, understand, use, and communicate information for personal and community development and decision-making. It involves skills in reading, writing, and talking. Numeracy (basic mathematics) is also generally included. This expanded view of literacy can also include different types of communication and information styles and processing, such as stories, rituals, art, and dance. Modern views of literacy may also identify specialized forms such as computer literacy or even emotional literacy – literacy is used to mean a set of skills.

Literacy needs (including numeracy) have changed over the years, and continue to change as technology, information, knowledge, and expectations become more complex. Reading comprehension has become especially important in enabling individuals to acquire, understand, communicate, and use new knowledge.

Effective writing is also more than the ability to write words. Writers must be able to organize thoughts, write for different purposes, etc.

Adult Literacy

Adult literacy programs deal specifically with adults (of all ages) who have poor literacy skills. Individuals may have dropped out of school and did not have the opportunity to develop higher levels of literacy, or they graduated but did not develop strong skills, or they did not have the opportunity for education. The emphasis in adult literacy programs is usually to help people develop better reading, reading comprehension and writing skills, as well as numeracy. However, programs generally also include strategies that help people

orally express thoughts, needs and ideas more effectively. Art and other creative methods can also be used to enhance communication.

Specialized variations of adult literacy include college up-grading and transition programs. These generally are programs that help students who want further education (such as post-secondary programs) to catch up on the reading, writing and numeracy skills that they may not have had the opportunity to develop but that are required for success in further study.

Early Childhood Literacy Programs

The development of good literacy skills starts in early childhood. Children first learn language, and learn to associate language with objects, emotions, behaviour, etc. They must then learn to associate written letters with the specific sounds that make up language.⁵

This understanding of the relationship between sounds and letters (phonics) is crucial to reading, and should start in the preschool years. Our brains are wired for learning oral language almost automatically in the early childhood years (although to learn, children must be talked to). Reading skills, however, must be specifically taught. But the brain is also wired to learn certain things more easily and effectively in childhood. Reading is one of the skills that become increasingly difficult to develop fully the older a person gets, and the more difficult a task is, the harder it is for anyone to stick to it. There is a much greater risk that children who do not have letter/sound knowledge (reading readiness) when they start school, will have greater and greater difficulties throughout their school years.

If children learn to associate reading with enjoyment, for example through parents' story-reading, and through the self-esteem and pride any child takes in learning new skills and knowledge, it will be more likely that they will become regular readers. And in order to become a fluent and understanding reader, a child must read regularly.

Early literacy programs therefore help parents learn how to help their children associate and identify letters and sounds, how to make reading enjoyable for their children, and how to encourage reading.

Functional literacy

Functional literacy (including numeracy) refers to people's ability to read, understand and accurately use the everyday materials that are generally necessary to get by in the social environment in which they live. In today's world, this includes things such as forms, instructions, labels, information about services and programs, job-related knowledge, and so on. Adult literacy programs generally focus on functional literacy.

Functional literacy needs change too, as knowledge and expectations increase. The basic literacy skills that may have been sufficient even 25 years ago are no longer enough to deal effectively in today's world.

⁵ With appropriate resources and instruction, even profoundly deaf children can learn to read.

Health Literacy

There are slightly different definitions of health literacy. However, all basically define it as an individual's ability to find, understand, communicate, and use health information and services in order to make good health-related decisions. Health literacy involves two-way communication. Individuals must be able to follow instructions, keep track of their illness and know what is important to watch for, make decisions, and accurately communicate their problems and questions. Health providers must provide information and explanations in ways that are most likely to be understood and accepted, and must listen well to their patients. This involves consideration of factors such as:

- language;
- cultural and social influences (especially as they relate to health issues);
- education level (with its implications regarding prior knowledge and comprehension);
- reading skills;
- language-comprehension skills;
- listening skills;
- background knowledge and understanding of health-related concepts;
- numeracy skills (for example, accurately taking medication “three times a day” involves the ability to calculate that this means every eight hours);
- emotional and physical factors (for example, mental health issues, hearing problems); and,
- the individual's comfort level in the health setting.

Full health literacy also involves the education system and other social, family and community factors.

There is now a great emphasis on plain language health materials and explanations. Even highly educated and literate people can have great difficulties understanding health-related language, forms, etc. Plain language materials enable people to have more knowledge and to understand information better in order to cope appropriately with specific health situations.

Numeracy

Numeracy is generally defined as the ability to understand and use basic mathematical skills. This includes the ability to count, to do the basic number operations (addition, subtraction, multiplication, and division), and to use those skills in everyday activities such as banking, measuring, and so on.

Numeracy is often a part of literacy programs, because many daily activities, such as paying for groceries, involve numbers. Also, activities that use numbers often involve reading – for example, in recipes or food labels, and banking.

Reading level

Reading level is a measure of reading, writing and comprehension skills. Many assessment tests have been developed to measure these abilities, and the level can be identified through a series of specific observations and activities.⁶ The skills which are assessed include:

- vocabulary;
- figuring out unfamiliar or difficult vocabulary (for example, by sounding out letters, thinking about context, basing guesses on prior knowledge, etc.);
- comprehension at different levels of what is read (for example, by identifying facts, making predictions); and,
- using reading and writing for various purposes (for example, enjoyment, supporting an opinion, finding and communicating information).

The term ‘grade level’ is often used. Much reading research has shown that by certain grades, the average student should be able to decode and write certain words, demonstrate specific comprehension skills, and understand certain sentence types. These abilities vary by grade. For example, later in Grade 1, students can be expected to learn/understand one-syllable and some two-syllable words, and to read, understand and write short simple sentences. By high school, the average student should be able to decode, understand and write multi-syllable words and understand and write complex sentences for many purposes. Assessment tests have been developed to indicate at what level a specific student is reading, understanding and writing, for example, “early Grade 2” or “high Grade 10”. As mentioned before, a student’s actual grade is not an indicator of reading grade level. Students’ skills can be average, above or below the expectations for their grade.

⁶ Provincial Ministries and Departments of Education, the Council of Ministers of Education Canada, school boards, Teacher Education programs, and teaching-resource publishers can provide testing materials and assessment information. For example, the Alberta curriculum is presently the foundation of school curriculum in the Northwest Territories and Nunavut. Alberta’s Ministry of Education has links to reading assessment resources for teachers: <http://www.lrc.education.gov.ab.ca/pro/resources/item-title.htm>

A BRIEF HISTORY OF WRITING AND READING

In every literate society, learning to read is something of an initiation, a ritualized passage out of a state of dependency and rudimentary communication... For most literate societies – for Islam, for Jewish and Christian societies such as my own, for the ancient Mayas, for the vast Buddhist cultures – reading is at the beginning of the social contract... (Manguel, 1996: 71).

Many early peoples around the world had used paintings and drawings as an aid to telling about and preserving events. However, these were not real writing systems, because they were drawings of events rather than symbols of a language. True writing systems use specific symbols to represent the specific ideas, words, syllables or sounds of a language.

The earliest writing systems developed many thousands of years ago, as a way of recording events, keeping track of trade and preserving religious and spiritual information. Writing made it possible for knowledge to be saved without having to depend on memory or face-to-face oral communication.

The ancestor of most of the world's modern alphabets was developed more than 3,000 years ago by a people called the Phoenicians, in the area that is now known as Lebanon-Syria. They adapted and added to the writing system of the Egyptians. Other societies and cultures then adapted and added to the Phoenician system.

It is also known that the native groups of Central and South America developed a variety of writing systems at least 3,000 years ago. Some were based on pictures representing both events and things; others also used symbols to represent syllables and sounds. The most developed seems to have been the writing of the Maya. In ancient times, writing in Maya societies seems to have been used especially to record the personal and military histories of rulers and the elite, religious rituals, rulers' and priests' communications with the gods, and as propaganda tools by rival rulers and conquerors to establish their right to rule. After the Spaniards arrived and destroyed many of the old texts, Mayans began to record their language in dictionaries. They also adapted the Roman (European) alphabet to write in their own language. The Spaniards' efforts to convert the South American indigenous peoples to Christianity also resulted in Mayan-language prayer books.

Christian missionaries spread literacy in Europe and in North America. The Bible was translated into local languages and populations were encouraged to learn to read so they could understand the Bible on their own. Aboriginal-language writing systems in North American indigenous populations were generally developed by missionaries.

In Labrador, literacy arrived with the Moravian missionaries. They had developed a written system for Greenlandic, based on the European alphabet, which was adapted for the Labrador Inuktitut dialect.

The Cree syllabics system, based on old British shorthand, was developed by the missionary James Evans in the 1840s and rapidly accepted by the Cree.⁷ The system spread quickly and far, for it was easily learned. Individuals taught others, including using burned sticks and birchbark for writing materials, or carving symbols in sand as a way of teaching others as they travelled (Harper, 2001). This system was later adapted for some other North American indigenous languages.

John Horden and E.A. Watkins, missionaries living primarily among First Nations, initially adapted the Cree syllabics to Inuktitut in the 1850s (using some previous work started by missionary Robert Hunt). The Reverend Edmund Peck arrived in the Eastern Arctic in the late 1870s and first used Moravian translations of the Bible in the Labrador dialect. Because the Labrador dialect was different, and used Roman orthography (the European alphabet adapted to indicate the sounds of the Inuktitut language), Peck decided to further develop Horden and Watkins' syllabics for Inuktitut use, so Inuit could read the Bible in Inuktitut.

Inuit quickly adopted this new and helpful way to stay in touch, exchange news and requests, share information with others in far-off communities, and keep a permanent record of events.⁸ Individuals taught each other, and sometimes themselves. Saullu Nakasuk, an Inuk Elder from Pangnirtung, says, "I taught myself [to read Inuktitut] by looking at letters. They used to get mail only, because they didn't have phones in the settlements. I would read the name in Inuktitut" (Oosten and Laugrand, 1999:66). The syllabic writing system continues in daily use, especially in Nunavut and Nunavik.

Written systems of Inuinnaqtun and Inuvialuktun dialects, the languages of the western Inuit regions, have been developed using the European alphabet, and these are in current use.

There were some written language systems that were developed by North American peoples themselves. Harper (2001) states that the only Inuit efforts happened in Alaska. Uyaqoq, a Yupik-speaking Alaskan Inuk who was a Moravian mission helper, began to develop a picture-writing system around 1900, and other Inuit followed his example and developed their own versions of picture-writing. Uyaqoq eventually expanded his into a syllabic system. Lily Savok and her mother Kilorak Ruth, in the Inupiak-speaking region of northern Alaska, developed a different style, and a third type was created in the 1940s by Edna Kenick on Nunivak Island. Apparently all of these systems were used only for Bible translations and preaching aids, and did not expand into other common usage. None are in use today.

The Cherokee leader Sequoyia started developing an 85-character syllabics and alphabet system around 1809 and completed it about 1821. Although he himself never learned to read or write English, he saw how Europeans used the tool of books, newsletters, posters, etc, which he called "talking leaves". He felt it was important to also record and save Cherokee history, language and ideas in their own language. Thousands of Cherokee quickly learned to read and write using his syllabic alphabet. By 1825, the Bible and other religious documents,

⁷ This was an expansion of his earlier Ojibway syllabics system, which the mission board apparently did not let him use. Missions often wanted indigenous peoples to learn the European alphabet as a necessity for assimilation (Harper, 2001).

⁸ See Laugrand, Oosten and Kakkik (2003) for photographs and texts of everyday letters written by Inuit.

legal documents, educational materials, and many books had been printed in Cherokee, and the first North American Aboriginal newspaper was published in 1828, in both English and Cherokee.

Throughout much of world history, reading and writing were available mainly to people such as leaders and their assistants, the wealthy who could afford books and education, and religious leaders and scholars. Historically, governments, religions and other groups around the world have sometimes actively fought against or discouraged a people's ability to read or to access books. The Hudson's Bay Company, for example, apparently did not allow printing presses to be brought into their territory (Harper, 2001).

Writing and the materials on which information was written were originally all hand-done and were therefore expensive. The invention of the printing press in the mid-1400s made some mass production of books and newspapers possible, and therefore spread literacy. Generally, people were considered literate if they could sign their names and maybe read simple materials. In the late 1800s, cheaper processes for making paper were developed, making written materials available to many more people, and a number of countries set up systems of public basic education. Literacy has therefore become a widely available tool for ordinary people only fairly recently.

In the past, basic, plain language factual literacy was generally the goal for ordinary people. Higher-level literacy that involved more complex thinking and knowledge was usually only intended for those who had more wealth and power. Basic and functional literacy often continue to be the most urgent need especially among countries and peoples where literacy rates are low. However, we now know that high-level literacy is necessary for fullest empowerment, fullest understanding and fullest ability to participate in the modern world.⁹ High-level readers can see deep below the printed words that float on the page, using clues like varied sentence structure, word order, punctuation, the words in the previous pages, and their own previous knowledge and experience. They have a better understanding of the ideas, thoughts, emotions, patterns, questions, guesses, unstated facts, etc., that give full meaning to the printed words. It is this deeper understanding that best enables readers to make full use of knowledge, create new ideas and apply knowledge to a variety of situations. New methods that give opportunities for everyone to develop higher-level literacy is a "hopeful departure from the long-running conception of literacy as serviceable skills for the many, and generative, reflective reading and writing for the few" (Bransford, Brown and Cocking, 1999: 121).

⁹ Because literacy is such an essential skill, the United Nations has declared 2004-2013 as the Decade of Literacy. The aim is not only to increase basic literacy around the world, but to help people – including those who are still in school – to develop the higher-level skills they need in today's world.

WAYS OF LEARNING AND LEARNING STYLES

Inuit and other North American Aboriginal societies were oral cultures in which literacy was introduced by outsiders relatively recently.¹⁰ Traditionally, knowledge was passed on orally by those who had more experience and skills, and who remembered what had been learned in the past. History and important life lessons were passed on through stories, songs and legends, for example. Listeners were expected to think about what they heard. As Emile Imarittuq, an elder from Igloodik, says, “[Stories] didn’t necessarily make someone live a better life [but] they made each one of us think, made us think hard” (Oosten et al, 2001: 179). Skills were learned mainly by observation and hands-on practice. Appropriate social behaviour was learned through oral feedback and observation of behaviour and consequences.

All human societies have been oral cultures, and in all societies much of our knowledge is still passed on orally. And much of our learning of skills is still based on oral instruction, observation and practice. Parents talk to their children about right and wrong, teach their children vocabulary, how to put on shoes, how to show respect, and countless other values and skills. As adults, we emphasize the need to talk to each other in order to understand, and much of our daily communication in the world is through talking and listening. And we only fully learn a wide range of skills – sewing, playing a fiddle, building a house, doing a heart operation, using a computer, etc. – through observation and practice.

Literacy, however, has provided a new way of acquiring knowledge that does not depend on personal experience or personal communication with others. Literacy has also provided us with a range of knowledge that would be impossible to acquire orally or from other individuals.

“Reading is a very special type of interface with the environment, providing the organism with unique opportunities to acquire knowledge. The world’s storehouse of knowledge is readily available for those who read, and much of this information is not usually attained from other sources. Personal experience provides only narrow knowledge of the world and is often misleadingly misrepresentational” (Cunningham and West, 2000: 318).

People learn through a variety of methods. We learn by seeing, hearing/listening, doing/moving/touching, and thinking about our experiences. Our emotions, beliefs, ways of relating to others (for example, whether we are social or solitary), instincts, and previous experience also influence what and how we learn.

Seeing involves learning through observation of events and behaviours, pictures, videos, graphs, etc. It also includes reading, for reading involves seeing language, seeing information. Hearing/listening involves explanations (including class lectures), music,

¹⁰ The argument is sometimes made that since Aboriginal cultures were traditionally oral, literacy and education expectations are a culturally inappropriate Western imposition. See for example, Rasmussen, 2001.

stories, etc. Learning by physical movement can involve not only hands-on practice of a skill but also movement while learning new information (for example, the children’s song about “put your right hand out and shake it all about” which can help children learn left/right and body parts).

Understanding information depends on thinking about what we have seen, heard, done, and understood. Learning and understanding new information happens best when we can hook the new information onto things we already know. All babies start by gathering information through all their senses – seeing, touching, tasting, moving, looking, and smelling. As children get older, they are more able to give meaning to all this information. As the brain develops, so does the ability to think, understand, and do. Traditionally and in modern educational psychology, it is known that elementary-age children generally seem to learn and understand best when:

- they have a chance to use all their senses in learning;
- they have demonstrations and other opportunities to observe;
- they have a variety of appropriate concrete (real) learning materials (for example, traditionally using skin scraps for sewing practice, and in modern education using objects like stones to learn counting and basic arithmetic concepts);
- students have opportunities for practice and experiments related to knowledge;
- there is a variety of learning experiences and activities; and,
- examples and activities are related to their real world.

As human brains develop, we are able to learn without always needing concrete hands-on learning experiences. We begin to be able to think more deeply about what we experience, and to understand things even if we don’t necessarily experience them. We develop the ability to think about complex ideas that may not be “real” in the sense that they can be seen/heard/felt, and to put information together in new ways, etc. We learn to learn through mental activity, not just through our senses. But full development of abstract thinking and comprehension depends on learning activities that enable those skills.

Although we use (and need) all these methods, and though different methods are necessary for different kinds of learning, many people seem to have a preference for using a main learning style. For example, one person may find they learn best when they can share ideas and experiences in a group activity. Another may need to go off quietly alone, read information first and think about it. New brain research suggests that these preferences may be based on small brain differences in people. Educators must therefore pay attention to individual needs. There are a wide variety of activities that are helpful for each type of learning style, and some useful ways of assessing an individual’s primary style and preference.¹¹

Inuit and other indigenous peoples are often said to be concrete hands-on learners. Paul Ongtooguk (2004: 2), in discussing Alaska Inupiat education, says,

¹¹ For an example, see the activities in “Native Learning Styles” by Michael Johnny. (See bibliography).

“A prevalent belief, for example, of many educators is that American indigenous people ‘learn by doing’. In schools the application of this belief often results in activities where students are provided a minimum amount of information and a maximum amount of activities that allow for random experimentation and ‘hands-on’ discovery. Such a simplified view of teaching and learning imposed on a diversified group of people is as foolish as the image of the northern Inupiat randomly searching for food in the Arctic¹²...Caucasian students are expected to exhibit a range of learning behaviour...Why would Alaska Natives be expected to perform any differently?”

Evidence from around the world shows clearly that there is no one learning style that applies to a whole group of people. A group may traditionally use more of certain methods. Inuit, for example, traditionally expected children to learn through observation but generally discouraged children from asking questions. And social and family values and expectations influence behaviour. Within all groups and cultures, however, there are great differences among individuals in how they actually learn best. (For example, although asking questions was discouraged, some Inuit elders have said that they asked a lot of questions anyway, as a way of trying to learn.)

New knowledge may require new ways of learning. Different kinds of knowledge also require different strategies for learning. Attention must therefore be paid to individuals and to their learning needs, rather than basing learning activities and expectations on stereotypes about “Inuit learn best when...” or “Aboriginals learn by...” As Priscilla George-Ningwakwe-Rainbow Woman (1997: 10) says,

“Much has been said about learning styles. The basic premise is that we do not all learn in the same way. In fact, when adult learners understand their own learning styles, psychological types, and learning preferences, as well as their underlying assumptions, values and beliefs, they will be able to adapt to other modes of learning as needed, know how to tackle a reading assignment, an essay, a new language, a field experience, a new career. They will have confidence in their abilities to learn new subjects, appreciate their talents in discovering new modes of learning...”

And the Nunavut Implementation Training Committee (2004) says,

“Physical skills and processes are usually taught best by demonstration, observation and practice...However, knowledge-based training needs are often best met through reading and classroom-style learning. Don’t try to train someone to build a house by giving them a CD-ROM; don’t try to teach someone accounting with a group discussion. Think about the kind of training, and make sure the training method is appropriate...Every adult has a slightly different learning style. That’s not a matter of choice or preference: it’s simply a fact that everyone learns in a different way.

¹² He points out that survival in traditional life depended first on knowledge obtained through seeing, listening, doing and thinking – for example, observing patterns of animal behaviour – and then developing understanding and skills in the application of that knowledge – for example, understanding when and where animals would probably be.

Effective training requires some awareness of the trainees' learning styles and preferences.”

HOW WE LEARN TO READ

Different areas of the brain are involved in the different aspects of language, such as hearing words, seeing words (reading), speaking words, and thinking of appropriate words. Various brain areas work together to make sense of the language we see and hear, and to produce language that makes sense to others, when we speak or write.

The brain's basic process for understanding words is similar in both written and spoken language. We first hear or see the word. We decode, or make sense of, the word according to its sounds. We then search the vocabulary and grammar rules that are stored in our minds to see if we recognize the word. If we recognize it, the parts of the brain that process the meanings and rules of our language get activated, and we then know what the word means and how it can be used. For example, when we hear or see the sentence, “The dog ran away” and decode it, we understand that “dog” is a thing (animal), “the” refers to a specific dog, “ran” is a specific activity done by the dog, that this activity happened in the past, and that “away” refers to space and direction related to the dog's action.

We are born with the ability to learn language. There are special areas and processes in the brain that make language learning almost automatic. We are born with the ability to hear all the different sounds of language, and we quickly learn which sounds are in our own language, how they fit together into words and sentences, and what those words and sentences mean.

Reading, however, does not happen automatically. The brain must be taught to make the connections between the sounds and rules of oral language and the written symbols that represent spoken language. Whether we learn to read well depends very much on our oral language. The larger a vocabulary a child has, the greater the variety of sentence structures s/he can understand, the more accurately s/he uses the grammar rules of the language, the greater the chances that the brain will learn to read more quickly and more fluently.

In order to read, the person must first have developed the ability to speak and understand oral language.¹³ Early decoding of written language begins by experiences such as relating written words to pictures, or to events such as seeing words on signs at familiar places. But it is essential that s/he must also have a beginning awareness that language is made up of individual sounds – this is called phonics. They must also develop awareness that words are made up of parts. A child who has this awareness will be able, for example, to recognize and use rhymes, understanding that /m-at/ and /b-at/ are similar even though the first sound is different. Children also need to understand that parts of a word can have specific meaning. These meaning chunks are called morphemes. For example, the word “walked” has two

¹³ This paper does not deal with the issue of deafness and language learning. However, in deaf people too, the brain is wired for language.

meaning chunks. The first part, walk-, tells us what the action is. The second morpheme, -ed, tells us the action happened in the past. Individuals (including adults) who have not developed this awareness of phonics and morphemes will find it very difficult to learn to read.

There has been much reading research in the last 25 years, and it has become clear that there are two crucial factors that lead to good literacy skills. The first is the initial process of learning to read – learning to understand the meaning of written letters or syllabics. The second factor is that to become a good reader, children need environments that are rich in books, other written materials, and opportunities to read.

Stanovich (2000), Abadzi (2003) and others state that studies now show that systematic phonics training is the essential and most important first step in reading, for both children and adults. The initial process of learning to read well requires analysis of sounds.¹⁴ In this phonics approach, beginning readers are taught to associate written letters with the specific sounds, using words already familiar to the child (or adult). They learn to understand what the oral word is by sounding out the written letters. They are not dependent on just recognizing words or guessing at meaning – they can actually figure out a word they’ve never before seen in print. This process of figuring out a word is called decoding. Specific but separate words, put together in certain ways, then combine into sentences, and readers/writers are gradually taught the rules of sentences so that the written language makes sense.

The second important element is that one must read in order to become a good reader. Like any other skill, good reading comes only through much repetition and practice. As the reader practices, s/he begins to see similarities and chunks in written words more easily and thus does not have to sound out every letter in similar words (*look, book, shook*), or think about

¹⁴ About 30 years ago, a theory of reading called ‘whole language’ became very popular and was adopted in many elementary schools in North America. This theory basically says that children learn to read naturally by being exposed to written language in a holistic way. Rather than having the phonics training of breaking words down into sounds, children are encouraged to recognize whole words that have real-life meaning for them. To help them learn more words, they should have access to many books and be encouraged to write personal stories. If they do not recognize a word, they are encouraged to guess what it might be; they are also encouraged to make up their own versions of spelling. It is believed that this gives children real literacy that has meaning for them. It is believed that focusing on breaking words into parts and sounds is confusing and isolates written language from the child’s whole life experience.

Whole language strategies seem to work with children who come from highly literate homes where parents have already helped them learn the association between letters and sounds.

“Ironically, the primary casualties of the Reading Wars are disadvantaged children who are not immersed in a literate environment and who are not taught the alphabetic code...[R]esearch has shown that a very efficient way to generate large social class differences in reading achievement... is to implement an extreme whole language curriculum that short-changes the explicit teaching of spelling-sound relationships... In short, when explicit teaching of the components of the alphabetic code is short-changed in early reading instruction, the middle-class children end up reading fine because they induce the code through their print-rich home environments and/or explicit parental tuition” (Stanovich, 2000: 363).

meaning chunks like -ed or -s. The brain begins to identify and process the written words automatically. Reading therefore gets faster. But decoding skills are not enough. To become fluent readers who understand what they read, children (and adults) must be exposed to many experiences of literacy. Books must be easily available, read to them, and read by them. The best readers develop when literacy experiences are in all parts of their lives, in school, at home, and in the community.

If they have the right opportunities, readers also learn to understand written language at different levels. The meaning of some writing is very clear and direct: “You should eat a variety of foods like meat, fruit and vegetables, and bread or cereal. You should also get some exercise every day.” In more complex writing, however, meaning may not be so obvious. The reader may have to make inferences – interpret or guess what is meant, from other information that is given or simply from ‘reading between the lines’ and using previous knowledge. From the sentence “Balanced meals and regular exercise are necessary for health at all ages,” the reader must be able to understand what “balanced” and “regular” mean in this context, and that this information also refers to their personal behaviour. Comprehension is the most important factor in reading and learning, in both school subjects and in life-long learning.

With gradually more complex reading opportunities the brain learns to make connections more easily and quickly between the written information and the processes that are involved in storing and understanding the information. The fluent, skilled reader no longer has to focus on figuring out what each word is and what a sentence says. Attention can then focus on comprehension skills – figuring out what the writing means and how it relates to the reader’s needs – and on remembering and organizing what is read so that the knowledge can be of use.

Research shows that there seems to be an important period in early life and childhood when the brain most easily makes the new connections that are necessary to the learning of language and reading. Adults, of course, do learn languages and reading. But generally they do not learn as easily nor do they become as fluent. “The need to learn the rapid recognition of complex patterns poses problems that are not apparent to people who become expert readers in their childhood” (Abadzi, 2003: 4).

The importance of memory in learning and literacy

There are different stages of memory. When we receive information through our senses, the information is stored temporarily in what is called short-term memory. There are two kinds of short-term memory. The first stage is called immediate memory, which lasts only seconds if we do not somehow pay attention to the information. If we pay attention by using some strategy like concentrating or thinking about what we have seen or heard, the information stays in our memory for longer. There is a limit to how much information working memory can handle, and how long the information will be remembered. The average adult can retain about seven relatively simple items of information in working memory, for about 10 to 20 minutes. The information will then generally be forgotten unless something more is done with it. In order to move information into more permanent long-term memory, we must use

strategies like repetition, or writing the information down and reading it repeatedly. If we do not make this transfer, the information fades away.¹⁵

There are also different kinds of memory. We remember things because different processes happen in different parts of the brain. One type is the memory for facts and experiences. This is relatively straightforward: “This is what happened; this is what was said,” etc. But facts and events must be processed in some way before they can be of use. The other kind of memory is memory for skills and other activities that involve putting together a range of knowledge and understanding. This second type is what we develop most in literacy.

In order to understand what is read, the brain must decode each word in a sentence, and then store each word in working memory. The brain must also process the grammar, word order and context of the sentence and store those meaning clues in memory. At the end of the sentence, the brain puts these stored pieces of information together to make sense of the sentence. In short sentences with short words, this process may not be a problem. But as words and sentences get more complex, the poor reader will not be able to retain the information long enough. Because it takes them longer to process words, time runs out. By the time they get to the end of a sentence, having had to concentrate on each word, the first words and meaning clues may have been forgotten. They will therefore not fully understand what they just read. This is even more complex when several sentences must be remembered in order to make sense of a paragraph, etc.

The more the reader practices – the more reading they do – the better the brain gets at processing words and meaning clues quickly, and at forming memory aids and links to what the person has read before and what the person already knows from previous reading or experience.

NEGATIVE EFFECTS OF POOR LITERACY ON HEALTH

Although more research is needed, Health Canada (2003) has summarized the main direct and indirect effects that poor literacy has on health issues physically, environmentally and emotionally. The findings are supported by international research. Direct consequences are the specific immediate health problems and risks that are caused by events and behaviours. Indirect consequences are those that result from the influence of personal and community behaviour and environments that contribute to the risk and development of health problems.

Examples of direct effects of poor literacy include:

- accidents and injuries caused when operating instructions, safety information, warning labels, directions, etc. are not understood;
- illness, risk of illness or worsening of illness when medications are not used correctly or medical instructions are not followed;

¹⁵ There are many simple everyday examples of this. Try to remember a 10-item grocery list that someone reads to you, or that you quickly read once, with no time for repetition. Notice what you do when you are trying to remember a phone number...you need to repeat it to yourself.

- inability to give informed consent to potentially risky operations, other procedures, or medications, because of inability to read and fully understand the risks;
- health effects in babies when formulas are not used properly.

Research shows that the major negative health consequences happen indirectly and are more numerous. They affect health through the determinants of health such as living and working conditions, physical environment, personal coping skills and health practices, and education and literacy. A person's biological genetic risk is also a determinant of health. However, as the World Health Organization points out,

“...the common causes of the ill health that affects *populations* are environmental: they come and go far more quickly than the slow pace of genetic change because they reflect the changes in the way we live...it is why health differences between different social groups have widened or narrowed as social and economic conditions have changed” (Wilkinson and Marmot, 2003:7).

Examples of these indirect effects of poor literacy include:

- poverty, for poor literacy and low education makes it much more likely that a person will be unemployed or in poorly paid employment; poverty in turn negatively affects:
 - ⇒ housing choices and house maintenance;
 - ⇒ availability and quality of food;
 - ⇒ mental wellness;
 - ⇒ social supports;
 - ⇒ children's early life experiences;
 - ⇒ knowledge of and access to services;
 - ⇒ educational involvement and opportunities: for example, students who are not well fed and rested have greater difficulties concentrating or are absent more often; the stresses of poverty may create difficult home environments which affect family and mental health;
 - ⇒ and many other factors that affect health;
- lack of awareness and access to information about rights, safety standards, etc. which are often written up but not necessarily explained; people with poor literacy are therefore more likely to be in unsafe environments, to be exploited, or to have their needs and rights ignored;
- higher stress, anxiety, depression, feelings of helplessness and lack of control, etc., all of which can create physical illness as well:
 - ⇒ poor literacy in today's world itself can create stress and shame when individuals realize they cannot do or understand what is expected in reading tasks;
 - ⇒ the unsafe or insecure living conditions of poverty or low income create stress;

- ⇒ low literacy limits the opportunities for acquiring a wider range of knowledge about coping skills – the individual may be dependent on a narrow range of known or observed, but ineffective, behaviours;
- ⇒ low literacy makes people less able to adapt effectively to change, for they have more difficulty acquiring the knowledge or accessing the resources necessary to cope with change;
- a greater chance that an individual will not be as aware of healthy lifestyle practices: for example, they are more likely to smoke; not use safety equipment; be unaware of or less likely to have recommended health tests; be unaware of healthy early childhood needs and practices; etc.;
- difficulties for low-literacy parents to understand and support their children’s educational and literacy needs and processes: low literacy and its effects can therefore continue from one generation to the next;
- a greater chance that people will have limited health information (which is often written, whether in advanced level language or plain language):
 - ⇒ oral information from health care providers may be hard to understand even when both speak the same language; misunderstanding is likely;
 - ⇒ professionals may assume that individuals know more than they do;
 - ⇒ people with low literacy have less background knowledge, which is often necessary to make sense of information and instructions;
 - ⇒ oral information from friends or relatives may be inaccurate;
 - ⇒ it can be difficult to communicate indepth or complex information orally, and difficult for individuals to remember such information;
 - ⇒ lack of knowledge can lead to inappropriate use of health services: not using services when it is necessary (e.g., not knowing what symptoms may be signs of health problems); or using them when they are not necessary (for example, for colds or minor aches).

“Low literacy limits opportunities, resources, and the control which people have over their lives. As a result, people with low literacy have limited opportunity to make informed choices about their own lifestyle” (Health Canada, 2003: 9).

THE EFFECTS OF HIGH-LEVEL LITERACY SKILLS

“Because I can learn more stuff,” and “It helps your brain think.” Responses of young Chelsea Elias and Kristen Elias of Inuvik, when asked why they enjoy reading (Inuvik Drum, Thursday, September 8, 2005: 10).

Poor literacy creates a wide range of negative health outcomes directly and indirectly. High-level literacy skills, on the other hand, have a direct and indirect positive effect on the determinants of health and health outcomes. The immediate direct effect is that good literacy

skills allow us access to much more health-related knowledge, and make it easier for us to understand that information. Indirect consequences are especially important in the broader, more holistic view of health. Being able to acquire, understand and use information in depth, without needing the help of others, contributes to better self-esteem, a greater range of choices, increased self-determination, more ability to stand up for oneself, and more control over one's own life.

Higher-level literacy skills enable people to be successful at higher levels of education, including the training that is necessary to become health providers in their own communities. Education and literacy skills are also factors in the choices that a person has for employment. Modern jobs are increasingly complex in skills, training and on-the-job requirements. A stable and more highly skilled job is more likely to provide better income for providing adequate housing, food and care for oneself and families.

The increased knowledge and skills that come with higher literacy also have positive effects on our community involvement, ability to use resources and our mental wellness. We are better able to contribute to improvements in our communities and find, use or develop resources. Through reading about other people's experiences and problems, we can learn new coping and problem-solving skills for ourselves and our families. The ability to contribute to our communities, make choices, reach goals, and solve problems leads to increased confidence and self-esteem. Research suggests that children who read poorly see themselves as less capable and more helpless, and are at higher risk of continuing to feel that way throughout life (Senechal, 2005).

High-level literacy skills free us from dependence on others to a large extent, giving us more control and power in our own lives. We can access, understand and use knowledge on our own. There will be fewer occasions when we need someone to explain something to us, or to tell us what to do. We can be interdependent – forming relationships, supporting each other, giving knowledge to each other – in positive ways that lead to better personal, family and community health.

What are high-level literacy skills?

Reading fluently and automatically without having to think about each word is a higher-level literacy skill that develops with frequent practice.

The most important aspect of literacy, however, is comprehension. Comprehension skills are thinking skills. Thinking skills are the ability to understand and use information in a variety of ways and situations.

It is important to understand that although we know that people with lower levels of literacy have lower levels of comprehension skills, this is not the same as lower levels of intelligence. Intelligence refers to our potential ability to learn and use knowledge. The potential is a combination of genetic factors and some crucial environmental experiences especially in early life. A person's eventual thinking skills are affected by intelligence – a child born with Down Syndrome, for example, has inborn differences that slow down or limit the potential to learn. Thinking, however, is a learned skill. Like any other skill, it develops with practice and the right learning experiences. Becoming a good fiddler, for example, depends on many skills: using the bow, placing our fingers on the right places on the strings, listening to the notes, and so on. As we practice, the skills become faster, smoother and more automatic. Eventually we are able to put the notes together into a whole piece of music quickly and easily; we are able to apply our skills to many different songs that require different styles of playing; we are able to recognize when a note doesn't sound right; and we are able to make up new songs. Comprehension skills develop in the same way and with the same gradual, increasingly complicated practice.

Comprehension skills include such abilities as:

- understanding written grammar, punctuation (including less common punctuation marks), word order, and complex sentence structures, because a change in even one punctuation mark, or a simple change in word order, can change meaning;
- figuring out the meaning of unfamiliar words from context (that is, from other information that is suggested or stated in the text);
- identifying main ideas and most important information;
- understanding context (the circumstances, facts and general content or situation that the written words refer to);
- making inferences (understanding something that isn't stated directly);
- analysing and evaluating what has been read (for example, reading several different possibilities for dealing with a health problem, and figuring out which is the most appropriate and helpful method in the reader's specific situation);
- making predictions;
- organizing and sequencing information and knowledge so that it makes sense;
- appropriately using and applying the knowledge that has been learned from reading;
- generalizing knowledge from a specific situation to other situations (for example, knowing that children should not get the same amount of aspirin as adults, and understanding that this applies to all medications);

- synthesizing knowledge (putting different information and ideas together in useful ways);
- understanding more complex or specialized vocabulary;
- being able to keep track of your own understanding – figuring out if you understand fully, if you need to find out more, how you can make sure you understand accurately, etc.
- knowing how to use tools that increase understanding (for example, dictionaries, indexes, appropriate questions, etc.).¹⁶

Higher-level literacy also includes the ability to read and apply these comprehension skills to different kinds of printed material, such as charts and graphs.

Good readers ask themselves questions to track their own comprehension. What am I trying to find out? Am I understanding this correctly? What is the best way for me to learn this? What did I learn from this? By paying attention to their thinking and the goals of their reading, they help themselves learn.

To develop these higher-level skills, readers must have frequent opportunities to practice at increasingly complex levels. They must have frequent opportunities to explain meaning, main ideas, inferences, etc.; to summarize and explain information in their own words; to evaluate and apply information appropriately in various ways and situations; etc. And they must be provided with feedback that helps them know whether their comprehension is accurate.

How do comprehension skills develop?

Comprehension skills begin at birth, as the newborn experiences the world through tasting, touching, seeing, hearing and smelling. As children develop language, they begin to give form to thoughts and to understand the thoughts of others.

The basics of literacy comprehension skills begin before the child learns to read. As parents, daycare providers, etc. read storybooks, the child begins to associate print with language. As they read or tell oral stories, children begin to develop the skills of remembering, sequencing, thinking about what they hear, etc. To encourage comprehension skills, storytellers should encourage children to think actively about the story. They can ask questions such as, “What is the dog doing?”, “What do you think will happen next?”, “What do you think she should do now?”, “What was the best thing about that story?”, “Did you ever have that happen to you?” and so on.

The purpose of formal education is to provide new knowledge and to continue this encouragement of thinking in a more structured, indepth way.

¹⁶ In the author’s 15 years of teaching post-secondary students in the North, the most frequent frustrations students expressed, including most who had completed high school, were related to such written-language comprehension, structure and organization skills.

“...the formal school system...encourages a wide range of cognitive skills. Indeed, the formal school culture develops in the individual a wide range of knowledge and skills that do not develop in everyday contexts. Through formal instruction, people come to develop more powerful, more generalizable and transferable analytic and problem-solving procedures and knowledge” (Bernardo, 1998: 130-131).

Although elementary school children learn best through concrete learning experiences that include hands-on activities, personal experiences, etc., thinking skills must also be developed. Here are just a few examples of the many comprehension activities that even kindergarten children can do:

- asking questions during and after a story is read;
- explaining a story (or a part of it) in their own words;
- creating their own storybooks by drawing a story with a beginning, middle and end, then explaining it to others;
- connecting their own life experiences to a story;
- discussing what they think are the most important events in the story;
- guessing what will happen next, explaining why they think that, and then discussing what they find out once the next part is read;
- explaining the purpose of different kinds of printed materials (for example, signs, newspapers, labels, etc.);
- comparing story characters or the characters’ behaviour.

Because of brain development, full abstract thinking ability begins to mature during the teenage years. By high school, students should be getting activities that challenge and build their comprehension at more complex levels. A few examples of such learning activities include:

- demonstrating understanding of concepts and vocabulary by transferring vocabulary learned in one subject appropriately to another context (for example, the term “bedrock” in geography means the solid rock under the tundra; but in a history essay that says, “The *bedrock* of Inuit society was family,” it means that family was the most important *foundation* of traditional life);
- pulling together information from different sources or different topic areas to form conclusions, and being able to explain why those conclusions make sense according to the evidence;
- comparing and contrasting arguments by two different authors on the same topic, and evaluating the strength of their logic and evidence (for example, analysing two different viewpoints on the benefits and disadvantages of industrial economic development in northern communities);
- demonstrating ability to use a wide range of appropriate knowledge sources to answer a question (for example, using books, encyclopedias, newspaper articles, and elders’ interviews to explain the history and effects of whalers in Inuit regions).

Silent reading activities should have follow-up. Students can do things such as explain the content of their book (a book report or a class discussion), and say why they would or would not recommend the book to others. Again, this can be done very basically by young children and with gradually more indepth detail in higher grades.

Although school is the main place where the whole day's emphasis is on developing learning and thinking skills related to literacy, it is not the only place where children develop comprehension skills. Similar activities can and must be done at home within families. Children can be asked to talk about what they've learned and read in school, home and other situations, how they can use what they've learned, what more they'd like to find out, what they've observed about other people, and so on. Knowledge application, analytical and generalization skills can be applied to many experiences outside school. Science and mathematics knowledge learned in school, for example, can be transferred to hunting and iglu-building. Comprehension encouragement can thus be used to build thinking through everyday experiences, problems, and wishes.

“Formal instruction may actually be an ideal context for literacy learning, provided the cognitive skills developed in the formal school environment are made continuous with other cognitive skills used outside the school environment” (Bernardo, 1998: 131).

Higher-level writing skills

Writing is an essential part of literacy. In oral communication, the speaker is able to use body language, tone of voice, repetition, etc., to express ideas. Face-to-face oral communication also usually gives both speakers the opportunity to make sure that information is understood: they can ask questions, give more explanation if necessary, discuss information that was mentioned earlier, and so on. Writing, however, does not give the same opportunity for such exchange of information. Ideas and information must be presented clearly and in an organized way, so that the reader understands what the writer intended. Punctuation, grammar and sentence structure must be accurate and appropriate for the purpose, so that the information is understandable. The writer must understand how to write for different kinds of readers, paying attention to vocabulary, style, sentence structure, etc., depending on the purpose of the writing.

Writing also increases our comprehension. When we have to express and organize the knowledge in our minds in writing, we are forced to think about it and understand it in order to make sense.

We learn to write by writing, but more importantly, we learn to write well by reading. The more opportunities we have to read different types of writing, for different purposes, the better we will be able to organize our own writing. And by writing well, we can express ourselves better, and also contribute to saving and passing on even the most complex ideas, knowledge and experiences.

How literacy comprehension contributes to learning and thinking

Research shows that there is a definite connection between low literacy level and lower levels of thinking skills, but there is some controversy about how literacy affects thinking. It was once thought that just learning to read developed higher-level thinking skills like abstract thought, ability to synthesize information, and analytical ability. However, people who do not know how to read also have these mental skills. Inuit, for example, traditionally emphasized the importance of just such higher-level thinking. But because there is so much new knowledge which is available only in writing, our brains must learn to process more knowledge in different forms.

Research now suggests that the important factor between literacy and thinking may be the amount and nature of our literacy experiences (Stanovich, 2000). The basic cognitive abilities exist already, but it seems that when we read more, when we read a greater variety of information, when we read more complex information, and when we use more knowledge from written information, our minds are forced to use complex thinking skills more often, more deeply, and in new ways, leading to improved capacity.

Our brain is required to make and use more connections between its different parts as it receives and analyses new information. This helps improve the brain's information processing ability.

“Learning changes the physical structure of the brain... These structural changes alter the functional organization of the brain... Alterations in the brain that occur during learning seem to make the nerve cells more efficient or powerful” (Branson, Brown and Cocking, 1999: 103,106).

The more we read, the more we know. The more we know and understand, the easier it is to know and understand more, and to use what we know. Researchers think that information is stored in the brain in groupings. The most important part of comprehension seems to be that our minds make connections between old and new information groups, put information together in different ways, and find new ways to use this combined knowledge. We thus build up comprehension and problem-solving skills. We have a greater amount of integrated information that we can pull out when we need to understand new situations or new problems.

We develop a larger vocabulary than we would in everyday oral life, which makes it possible to express ourselves more effectively and to understand new information better.

When we read, our memory is exercised continuously and in new ways. We increase our ability to identify what is important to remember and what can be ignored. We develop strategies for storing information in both short-term and long-term memory. We establish

methods for making sure we can retrieve the information when we need it. All of this happens consciously and unconsciously, and improves our mental abilities.

Reading and writing allow us to remember more. As was discussed earlier, our working memory can store only a little bit of information at a time. When we hear things, we are only able to hold on to part of what we hear; there is no time to store everything in permanent memory even if it is important. When we are able to read information, we can read it again and again until it is remembered. Reading also allows us to go back and find information that we have forgotten.

When information is written down, we are able to lay out a large amount of varied information at one time, look at different parts of it, think about it, move it around and put it together in different ways, decide which parts are most important, etc. For example, at a meeting of community members who are developing a plan to solve a community problem, it is necessary to write down ideas. When all opinions and ideas are visible, they can be evaluated, reorganized, reworded, etc. These are activities that cannot be done effectively when information is only oral. And they are activities that require and develop complex uses of thinking.

Just getting and remembering information is not enough. We must be able to use the knowledge to guide behaviour in a great variety of situations. Well-developed thinking skills help each bit of new information become hooked onto our previous knowledge and integrated in our minds. When knowledge is holistic in our minds, it is most useful, for it can be used and adapted to many different situations, and can become an almost automatic part of our problem-solving capability.

DISCUSSION

The goals that Inuit want to achieve are also the social determinants of health: good quality education; stable income and employment opportunities; solid families and community support systems; effective and culturally appropriate health services; the best early childhood experiences for children, etc.

The emphasis in adult literacy programs is to increase the functional literacy skills of individuals so that they can better cope with the requirements of the modern world, in which “much of the information needed to make decisions and improve one’s economic, personal, family or political conditions is presented in written form” (Abadazi, 2003: 9). This includes the ability to understand written materials, to respond appropriately in writing, and to improve the comprehension skills that affect behaviour and decision-making.

The emphasis in health literacy movements is to develop written health materials and encourage oral professional communication in plain easy-to-understand language. Such knowledge transfer will enable the large number of Canadians who have lower literacy skills or second-language factors to better understand essential health information and take more personal control over their own healthy practices. However, plain language materials alone

do not necessarily lead to the changes in behaviour that improve health outcomes (Rudd, 2004).

Basic and plain language information tends to give us important specific facts and instructions about specific illnesses or health-related issues like nutrition, but it does not give us broad and indepth knowledge.

It is crucial to provide programs that improve basic and functional literacy skills. It is crucial to develop these plain language materials and strategies of transferring knowledge that respond to the needs of people with lower levels of literacy and those whose first language is not English. Formal education and book-learning are new to Inuit society, having existed only for a couple of generations. As a result, there are still a number of Inuit who have limited years of schooling. Inuktitut is also the language of home and community for many Inuit¹⁷ (you may want to cite stats here, ie: 70 per cent of Inuit can carry on a conversation in Inuktitut, Statistics Canada, 2001 Census), so opportunities for learning English vocabulary and full understanding of English grammar and sentence structure have been limited. Upgrading programs, plain language materials and concrete learning experiences are therefore crucial tools in current education programs, especially for adults.

But basic and functional literacy programs are goals and initiatives that respond to a problem after it has occurred. They respond to the needs of people who have not had the opportunities to develop good literacy skills.

The goal of full literacy skills is of great relevance to Inuit communities. Inuit want to preserve the language and knowledge of their elders and they also want to access modern knowledge so they can be full participants in the modern world, with ownership and control of the human resources necessary for governance, health, education, etc., and so community members have the knowledge they need to have control of their lives. High-level literacy is an essential factor in reaching these objectives. The ability to think well – to gather, understand, analyse, and use knowledge – was very highly valued in traditional Inuit society (Korhonen, 2002). And Inuit always welcomed new knowledge and information, analysing how to use it to reach their goals. The nature and content of the huge range of modern knowledge requires the same abilities. But the methods for acquiring knowledge have changed. Good literacy skills are now needed. If Inuit are not provided with the same opportunities as non-Inuit to develop the highest levels of literacy, they will never be fully empowered in today's world.

Research from around the world shows that formal education is essential for knowledge and skill building in the modern world. We learn values, beliefs, behaviours, many skills and much knowledge from families or community members, but it is no longer possible to learn everything we need to know that way. There is so much knowledge, and it is so complex, that we must learn from specialized experts. Formal education in a range of subject areas is also necessary for the systematic and regular experiences and feedback that are necessary to

¹⁷ Statistics Canada's 2001 Census shows that 70 per cent of Inuit can carry on a conversation in Inuktitut. A study in Baffin Region showed that for Inuit who are bilingual, Inuktitut is the preferred language for talking about feelings, religion, and domestic matters (Dorais and Sammons, 2002).

develop higher-level literacy. This is a process that takes time and much practice, which formal education should provide. Children’s skills build up bit by bit, and their brains establish the necessary connections bit by bit. They must master each level of skill in order to be fully successful at the next level. It is possible to improve literacy skills in, for example, adult upgrading classes, but it is seldom possible to develop full high-level literacy in such time-limited programs.

With good intentions, culturally appropriate education is sometimes interpreted as meaning Aboriginal children do not have the same learning needs as non-Aboriginal children, as was discussed by Ongtooguk (2004).¹⁸ And with good intentions, education for poor and minority children has often been based on a belief that they must be provided with opportunities for success, which can only come from lowered expectations.

“The development of compensatory education has traditionally been informed by the belief that disadvantaged students can benefit most from a less challenging curriculum and limited achievement goals. Thus [education services] comprise curricula stressing basic skills in reading and mathematics, vocational rather than academic programs, and a slower instructional pace. Unfortunately, according to Levin (1987), this approach further hampers the ability of low achieving students to develop thinking skills, lowers their expectations, and stigmatizes them as inferior” (Passow, 1990).

Inuit must ensure that this is not the pattern in their communities. Some students will not do well. Some students will not be motivated. Some students will not have the important home emphasis on literacy. And some students will want to take more practical learning rather than academic subjects that involve complex literacy. Appropriate programs must be available for those students. Social, family and personal factors that can influence a student’s motivation and learning must also be understood. But research shows that many people rise to increased expectations and welcome challenge when it is available.

Inuit traditionally valued competence and had high expectations for thinking and for skills development. Inuit students must also be provided with the opportunities for high expectations and challenge in the modern need for literacy. When Inuit postsecondary students were asked what northern high schools could do for students wanting to continue their education, the most frequent responses involved increased expectations: more and harder homework and assignments, more reading, more presentations, “ask more from students but also give more to learn” (National Aboriginal Health Organization, 2004: 37).

Lena Ellsworth, an Inuk and mother of a daughter in elementary school, says,

“The education system has a big part to play in what the state of the society is or will be. One of the first and important determinate signs for success or failure is expectation. If a parent or teacher has higher expectations of their children, then the

¹⁸ In 18 years of life in the north, the author has too often heard well-meaning non-Inuit say things like, “Inuit don’t need to know that,” or “That’s not appropriate for Inuit.” Inuit need to know as much as non-Inuit. They can then make their own decisions about what is appropriate and necessary.

children work harder and perform as expected...If a child is told or treated as ‘less than’, there is a good chance that, that child will act as expected and treated” (personal communication, September 28, 2005).

Prevention of poor literacy requires that high-quality appropriate learning opportunities must start at the beginning of elementary school and continue at increasingly complex levels throughout high school. Very few Inuit high school students are taking higher-level courses in academic subjects like science, mathematics and English (National Aboriginal Health Organization, 2004). In some cases, they do not have the opportunity because courses are not offered. In other cases, they just don’t choose such courses. In other cases, students have not obtained the required skills and knowledge in elementary school and are therefore placed in lower-level or practical courses. In the same report, the main need expressed by post-secondary students is that they did not have all the knowledge and skills necessary for higher-level education. Students had to work extra hard, or take upgrading or tutorial help.

Each subject area provides new vocabulary, different thinking experiences and different types of comprehension activities. Academic subjects such as higher level mathematics, science, history/social studies and language courses provide and require increasingly complex literacy skills. Practical and vocational courses must also include learning activities that develop thinking skills, for students need problem-solving skills whatever they will be doing in their lives. Inuit students must be provided with such courses, and must be encouraged to take such courses. And the courses must have the same content and achievement standards as similar courses have for southern Canadian students.

High-level literacy is essential if we want to increase the numbers of Inuit working in the health care field. The post-secondary materials required to become a professional or a paraprofessional in any field are not written in simplified versions of concepts and language. To be fully knowledgeable and empowered, Inuit must have the skills necessary to read complex written language quickly and fluently and to fully understand what is read. These skills affect the ability to use knowledge appropriately. This comprehension ability is especially important in the specialized language and concepts of health providers’ education.

Early childhood development is a focus in Inuit regions, and the foundations of good literacy begin in early childhood. To learn well, children must be ready to learn to read when they start school. Parents can prepare children to be successful at learning to read through activities such conversations with their children (to build vocabulary and grammar understanding), reading stories to them while they follow along, asking questions about the stories, playing rhyming games, etc.

“It is a huge irony that before formal schooling, literacy rates among Inuit were likely higher than in any other part of Canada. This was partly due to the ease of learning the syllabic writing system with its consistent phonetic patterns, but more importantly because reading was taught at home, around the *qulliq* when families read and re-read passages from the scriptures.”¹⁹

¹⁹ Personal communication, Nov. 3, 2005, from Noel McDermott, a longtime northern teacher and Nunavut Teacher Education Program instructor, who also speaks and reads Inuktitut.

The ability to understand and use written materials was seen as an important skill by Inuit in the past. Literacy begins in the home and today is further developed in the formal education system. But communities too can again emphasize its importance, by developing community-relevant strategies, appropriate to today's needs and lifestyles, to encourage and enable reading. Katherine Minich (personal communication, January 20, 2006) notes "the challenge of creating the immersive literacy experiences to make a dramatic impact on the rates" and mentions the possibility of "social enablers like book clubs, book sharing, 'babysitting club' training, parent-run after school programs [or] other ways those communities can draw awareness to accessibility and availability for books."²⁰

Laying a strong literacy foundation also includes presenting reading as an activity that is enjoyable. People only read if they are motivated to read, and enjoyment is a strong motivator. Research shows that reading only in school may not be enough to develop the best skills. Children must be encouraged to read outside of school, to have reading as a part of their everyday lives (Stanovich, 2000). Research also shows that children become more motivated to read when their homes have books and when they see parents themselves reading. The more we read, the better we get at it. The better we are at reading, the more we enjoy it. The more we enjoy it and are good at it, the more we read...and the more knowledge we obtain.

Inuit live in a bilingual society of home culture and community in a broader Canadian context. Their goal is therefore to be fully bilingual in their mother tongue and in English (Inuit Tapiriit Kanatami, 2004).²¹ International research supports this goal. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2003: 33) states that indigenous groups in a society have the right to education in the mother tongue but must also be given an education in the national language, "so that minority and indigenous peoples have the opportunity to participate in and contribute to the larger community." In Canada, English or French are the languages of higher education and of modern knowledge in countless complex areas. This knowledge is not yet available in Inuktitut, and will not be for the foreseeable future. UNESCO (2003: 31) states that full literacy in the mother tongue:

"can only be maintained if there is an adequate supply of reading material, for adolescents and adults as well as for school children, and for entertainment as well as for study. The production and distribution of teaching materials and learning resources and any other reading materials in mother tongues should be promoted."

That goal cannot be reached in Inuit regions until Inuit first develop a wide range of terminology, and obtain the indepth content expertise that is necessary, for example, to write

²⁰ Katherine Minich is an Inuk, a Research Officer of the Indigenous Health Research Development Program at the University of Toronto, a member of the Board of the National Aboriginal Health organization, and Chair of NAHO's Ajunnginiq Centre Governing Committee.

²¹ Or French. I generally refer to English because that is the primary second language of most Inuit.

textbooks and teach secondary and post-secondary subjects effectively.²² In order to obtain that expertise, they must obtain knowledge in English or French. Education policies and programs must therefore ensure learning content, activities and feedback strategies that enable Inuit students to develop the full English or French literacy necessary to access knowledge. A high school principal in one Inuit region states that,

“In terms of academics, the biggest issue is the language barrier. Even though our students speak English – and for the most, this is their first language – they lack the necessary skills for fluent oral and written communication” (National Aboriginal Health Organization, 2004: 8).

When bilingual fluency is the eventual goal, the pre-reading and early reading activities can be in the child’s stronger language, generally that which is used at home. Children who understand the relationship between the sounds and written symbols of Inuktitut, and who learn the basics of reading in those languages, can transfer those cognitive and practical skills to English as long as they are given adequate opportunities to learn the different symbol and structural systems. This balanced bilingualism, in which children develop strong age-appropriate language and literacy skills in two languages, seems to have the most benefits for school success and for cognitive development (Cummins, 1998; Sternberg, 2002). To develop the best skills in both languages, it may be beneficial for Inuit children to start having comprehension and literacy activities in both languages when they have mastered reading processes.

Throughout school, comprehension can be built through the use of both languages. Although it is necessary to obtain much knowledge especially in secondary school from English textbooks, discussions and other activities that build comprehension can be done in both Inuktitut and English as appropriate. For example, if the teacher and some students speak only English, Inuit student working groups can prepare for debates or presentations in Inuktitut, but present their findings in English.

Good literacy also includes good writing. The ability to write clear, organized, knowledge-based reports, documents, opinions, instructions, presentations, research results, etc. is an essential part of education, jobs, and government.

Opportunity for life-long learning is a goal of Inuit. The desire for life-long learning is certainly evident in Elders in Inuit communities: they attend conferences, workshops, and community meetings. Good literacy skills make it possible for everyone to learn throughout life, on their own if necessary. And knowledge acquired at any time provides health benefits, in the most holistic sense, to an individual and therefore to his/her community.

A wide range of knowledge that is fully understood improves the ability to make decisions. It provides confidence. It improves skills in a wide variety of areas. It improves our ability to participate more fully in our community. It improves our understanding of ourselves and others. It improves our ability to take care of ourselves and others physically, emotionally,

²² At an international Inuit youth conference on Inuit languages, it was noted that standards for the few learning materials that are available in Inuit languages are often not as high as in English textbooks (Minogue, 2005).

spiritually and economically. Knowledge and comprehension is a factor in all the determinants of health. High-level literacy skills are the key to full participation in the world today. Half of all Canadians do not have full literacy skills, and many Canadian students are graduating from high schools without full literacy. With control of their families, communities and education systems, Inuit can set a long-term goal of being in the population half that does have the literacy competence needed for maximum power and health in their own lives and communities.

[Poor education] creates and fosters low self-esteem, and unhealthy dependency (due to poor literacy, have lower paying jobs or be on social assistance, stay in unhealthy and dangerous relationships, do not know and cannot fight for their rights, etc)...Give them high quality education and expectations and they will have better health, holistically” (Lena Ellsworth, personal communication, September 28, 2005).

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