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**Guiding Principles**

**for**

**WNCP**

**Curriculum Framework Projects**

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## **Guiding Principles for WNCP Curriculum Framework Projects**

### **Foreword**

The ways people live and work in today's world have significantly changed from past decades. Although we no longer live in an industrial age, many structures, processes and policies in education are still shaped by the needs and presumptions of this age.

Current times are post-industrial. Three dominant forces have significantly impacted various aspects of today's world including education: i) the rise of globalization which has led to an economy that is increasingly knowledge-based, ii) new findings about learning from the learning sciences that impact curriculum, instruction and assessment, and iii) the pervasiveness of networked digital technologies that open up new ways of thinking, ways of working and tools for working and living in the world.

Globalization is manifest in many forms but in education perhaps more particularly with increasing diversity as a result of mobilization and the increasing need for a well educated, healthy workforce. The learning sciences continue to challenge conventional approaches to curriculum development, teaching, learning and assessment. New advances in learning are causing the educational community to rethink, re-examine and reinvent the educational endeavour from the ground up. New and continuing advances in networked digital technologies provide new opportunities for both teachers and students in what is learned, with whom, when and where.

Acknowledging that these three external forces significantly influence education, those charged with directing WNCP curriculum framework projects critically examined both the impact of these forces and their implications for development. There is consensus among the WNCP directors that principles are needed to guide further curriculum framework projects. These principles need to reflect and encompass the new realities. Rather than being exhaustive, the directors chose to focus on five principles that would speak to both current and future curriculum framework projects. They have acknowledged that since the year 2000, a number of jurisdictions within western and northern Canada have begun initiatives in response to the changing times. Many have started to initiate change directed towards rethinking structures, curriculum, assessment, resources, processes and policies required to meet the needs of today's knowledge-based societies<sup>1</sup>.

This document is not meant to replace the work of the provinces and territories. Rather, it is meant to unite what are often pockets of innovation and change, bringing strength and unity to all WNCP curriculum framework projects. The document takes into account the major trends affecting education and these are reflected in the five guiding principles that serve as starting points for rethinking curriculum frameworks, and are not meant to replace or rescind current work on curriculum being done within WNCP jurisdictions. The broad area of Kindergarten to Grade 12 curriculum in the WNCP is defined to include curriculum frameworks, resources, and assessment.

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<sup>1</sup> See UNESCO (2005) for an overview of Knowledge Societies.

## Introduction

People learn. Learning is fundamental to human beings. It is the specialization that we use to become fully human (Fischer & Immordino-Yang, 2008, p. xvii).

I get it. When I want my grandson to learn about trapping, I take him out with me on the trap-line. And when we are out on the land, I teach him about the things he needs to know. I don't teach him all those things first, like the animal tracks, how to set traps, where to set the traps, what trails to take. If I did that he would never get to go out. We would starve. (Personal communication, Cree Elder, 2010)

New findings from the learning sciences forward a “theory of learning ... that leads to very different approaches to the design of curriculum, teaching, and assessment...” (Bransford, Brown & Cocking, 2000, p.3). These approaches are not only different in degrees, but also significantly different in kind, from those of our previous century.

In the past, curricula were designed so that students might acquire “know that” knowledge, i.e., facts, definitions, terms and procedures. Curricula were assessed on students' ability to recall this type of knowledge on examinations. However, a shift has occurred in today's world and it is not enough that students merely acquire “know that” or “know what” forms of knowledge. Today, curriculum design needs include:

- know-what and know-that: knowledge about facts;
- know-why: knowledge about principles and laws governing facts;
- know-how: skills, i.e., the ability to do something with “know-what” and “know why”; and,
- know-who: the ability to trace knowledge across the disciplines and specializations (OECD, 2000, p.14f).

Today, knowledge is understood as organized in living, developing fields, changing and adapting in the presence of new circumstances, new evidence and new discoveries. In some respects, this has always been the case. The dilemma faced by educators, however, has been this: curriculum has been designed as if knowledge about a field was different from the knowledge in that field, and that one preceded the other. Students could not enter the complexities and ways of a field until after they had learned all the facts, definitions, procedures, etc. about the field. Learning how to do something came BEFORE doing it. This distinction is clearly articulated by the Cree Elder at the beginning of this section. Perkins (2010) calls this “being in the game.” He notes that this is the first principle of learning and contends that the young need to be “in the game” from the beginning. Today, the knowledge needed to work in the field and working in the field are the same thing. Learning to work “in the field” is thus, no longer the work of a few privileged elite; it is also the work of the young. Entering into this living curriculum work is understood to be a key in coming to know that field and its workings. Researchers (Bransford, Brown & Cocking, 2000; Darling-Hammond, 2008; Jardine, Friesen & Clifford, 2006; OECD, 2008; Perkins, 2010; Sawyer, 2006) urge educators to design curricula, teaching and learning that put students “in the field,” “in the game.”

Each discipline of knowledge has its own ways, its own “culture.” Coming to know the culture in which knowledge is produced (the culture of science, mathematics, history, etc.), the ways in which it is created, changed, verified, communicated and generalized are essential to being able to participate and contribute to Knowledge Societies (UNESCO, 2005). This new reality when combined with new understandings from neurology and the cognitive sciences (see

OCED, 2007), require those of us in educational endeavours to rethink, reinvent, rearchitect and reengineer many aspects of our current system.

Current research from the learning sciences regarding the essential features of learning provides a strong basis to begin to understand what 21<sup>st</sup> century learning means and entails. “The emerging science of learning underscores the importance of rethinking what is taught, how it is taught, and how learning is assessed” (Bransford, Brown & Cocking, 2000, p.13).

Learning scientists have reached a consensus on the following aspects of learning:

- *Collaborative knowledge building.* Collaborative knowledge building is essential to the process through which learners engage in innovation and knowledge creation. It includes inquiry processes specific to the disciplines and complex processes of representation to communicate during collaboration. Cognitive and neuroscience research shows that knowledge is based in activity. When we actively control our experience, that experience sculpts the way that our brains work, changing neurons, synapses and brain activity (OECD, 2007; Singer, 1995). When we are simply exposed to events and information (as opposed to acting on them), our brains and bodies are not much affected. Knowledge-building requires learners to engage collaboratively in idea improvement, problem solving, elaborated forms of communication, consulting authoritative sources and knowledge advancement as they undertake real problems, issues and questions. Ways of thinking, ways of working, tools for working and living in the 21<sup>st</sup> century world, are acquired through knowledge-building activity.
- *Conceptual understanding.* Conceptual understanding is required for deep learning and deep understanding that enables learners to make connections, reason, innovate, problem solve, critique and create. That is, conceptual understanding is essential to the work of knowledge creation. This means that students need to be presented with many examples where the same concept is at work. It requires depth in the key concepts of a discipline and “active coordination of the curriculum across school years” (Bransford, Brown & Cocking, 2000, p.20).
- *Scaffolding.* Scaffolding is essential within the process of learning. “Scaffolding is the help given to the learner tailored to that learner’s needs in achieving his or her goals of the moment” (Sawyer, 2006, p.11). It requires that teachers have deep understanding of their disciplines, the students they teach, how people learn, the resources available to them, as well as the curriculum outcomes. Teachers must be able continually to draw out students’ pre-existing understandings to scaffold them to a place of deeper learning and deeper understanding.
- *Authentic intellectual engagement.* Authentic intellectual engagement with things that are personally meaningful and worth knowing triggers the desire to understand. “When the brain suddenly makes connections and sees patterns between the available information...the most intense pleasure the brain can experience, at least in a learning context” occurs (OECD, 2007, p.72-73). This engagement requires that the tasks being ENGAGED themselves have an authenticity, that the work being done in classrooms is “real work” that reflects the living realities of the discipline being taught. The patterns experienced by engaged students (of knowledge, of ways of working, of what is going on in the world in this discipline of knowledge) are thus themselves experienced as authentic to the life of that discipline. Authentic intellectual engagement is the hallmark of 21<sup>st</sup> century learning.

- *Ongoing formative assessment.* Ongoing formative assessment is required throughout the learning activity to make students’ thinking visible to both students and teachers. It needs to be embedded in instruction and include clear criteria for performances of understanding along with specific, helpful feedback during learning.
- *Digital technologies* play a powerful role when used to support learning and knowledge-building activity. They are particularly powerful not only in helping students solve problems but also in posing new problems. It is a medium that makes for elaborated forms of communication, collaboration, building local and global communities, revision, requesting and gathering feedback, providing scaffolding, creating new products and participating in and contributing to local and global communities.
- *Reflection or metacognition.* “Because metacognition often takes the form of an internal dialogue, many students may be unaware of its importance unless the processes are explicitly emphasized by teachers” (Bransford, Brown & Cocking, 2000, p.21). Knowledge about one’s own learning, of one’s own learning strengths and weaknesses, and the demands of the learning task are essential for creating the self-directed learner.

Sawyer (2006) highlights a number of the learning sciences research findings in the following chart:

Learning Knowledge Deeply (Findings from Cognitive Science)	Traditional Practices (Instructionism)
Deep learning requires that learners relate new ideas and concepts to previous knowledge and experience.	Learners treat course material as unrelated to what they already know.
Deep learning requires that learners integrate their knowledge into interrelated conceptual systems.	Learners treat course material as disconnected bits of knowledge.
Deep learning requires that learners look for patterns and underlying principles.	Learners memorize facts and carry out procedures without understanding how or why.
Deep learning requires that learners evaluate new ideas and relate them to conclusions.	Learners have difficulty making sense of new ideas that are different from what they encountered in the textbook.
Deep learning requires that learners understand the process of dialogue through which knowledge is created and can examine the logic of an argument critically.	Learners treat facts and procedures as static knowledge, handed down from an all-knowing authority.
Deep learning requires that learners reflect on their own understanding and their own process of learning.	Learners memorize without reflecting on the purpose or on their own learning strategies.

(Sawyer, 2006, p.4)

## Curriculum Shifts

As the world changes, the expectations placed upon education shift to meet these changes. The ability of education and educators to remain responsive to such shifts in circumstance and necessity is a sign of vigorousness and health. Such responsiveness is itself part of the nature of education as a living, intergenerational project.

“Keeping knowledge alive” (see Doll, 2009) is therefore in the very nature of a 21<sup>st</sup> century education. Understanding curriculum and curriculum development with an eye to keeping knowledge alive for teachers and students is the key to understanding 21<sup>st</sup> century learning and learners.

Certain ideas and expectations regarding the nature and need for knowledge have radically shifted in the past twenty years. Previous models of curriculum and curriculum development, based on images, ideas and beliefs that presumed knowledge could be broken into pieces and disconnected fragments that could be sequentially assembled in the classroom, are no longer adequate for the 21<sup>st</sup> century.

Curriculum for the 21<sup>st</sup> century needs to be designed to address what we now understand about how knowledge lives, works, is created, assessed and organized in the world. Knowledge, as lived in the world, is full of relatedness and interdependence. It includes established knowledge and precedents, as well as ways of inquiring, gathering, confirming, demonstrating, communicating and assessing knowledge. Unlike previous curriculum models built on breaking apart disciplinary content and concepts, curricula for today’s world use ecological metaphors. Knowledge is dynamic, always in the process of being constructed, and coming to know means the ability to enter into, learn your way around, participate fully in the culture of the discipline and make a contribution (Kanigel, 2005; Sawyer, 2006).

What is new in curriculum and curriculum development for the 21<sup>st</sup> century is a shift in the images we use, away from knowledge pictured as fragmented pieces put together, one piece at a time, in a linear fashion on an assembly line, to an image of knowledge as a complex organic network organized into living fields, territories or “landscapes.” Learning about these living fields of knowledge requires:

“learning the landscape.” In this metaphor, learning is analogous to learning to live in an environment: learning your way around, learning what resources are available, and learning how to use those resources in conducting your activities productively and enjoyably. Knowing where one is in a landscape requires a network of connections that link one’s present location to the larger space. (Bransford, Brown & Cocking, 2000, p. 139)

This is a relatively new set of images, analogies, metaphors and ideas, one that began emerging in the field of curriculum studies and learning theory only in the past twenty years or so. However, this shift from fragmentation to interrelatedness has analogies to several contemporary shifts in other areas:

- Information and communication technologies (ICTs) have come to picture knowledge as organized into decentralized networks, interdependent, living and emergent, worldwide “webs.”
- Ecology, as a metaphor for curriculum, arising from work in the learning sciences, speaks of ecosystems where the interrelatedness of things is of prime importance.
- Globalization has changed and continues to change the ways people live, interact, communicate and work in today’s digitally connected world. Not only has

globalization been punctuated by economic change and the rise of digital technologies. It has also been marked by a rising awareness of the interdependence of cultures and the deeply cultural character of knowledge and its ways. A Knowledge Society is thus inevitably multicultural and this must be reflected in how knowledge is taught and learned.

This shift towards living “landscapes” of knowledge in the principles of WNCPC curriculum framework projects is therefore, in concert with a wide array of parallel shifts in our world. Research and reflection in these other areas can help inform and support curriculum development in its shift away from linear images to more integrated, interdependent images of knowledge.

WNCPC curriculum framework projects also need to be informed by current research about how people learn and the changes to learning environments that this implies. Additionally, frameworks will need to be informed by an understanding of how various forms of knowledge are actually practiced in the disciplines as they work to create knowledge in the world.

The demands and opportunities of WNCPC curriculum framework projects for the 21<sup>st</sup> century will require those involved in their formulation to struggle with new ways of speaking and writing, as well as new and often unfamiliar ideas and images. Old ways of thinking are difficult to uproot because of how deeply rooted they are in the educational culture. It will take time and repeated effort to untangle all these threads and their lingering effects. New ways of thinking will require ongoing time, thoughtfulness, reflection, study and practice. Previous models told us that this sort of ongoing need was an indication of inefficiency in the system. The new model tells us that it is precisely this sort of lifelong, ongoing, generative, scholarly engagement that defines the shape of 21<sup>st</sup> century learning itself.

### **Guiding Principles**

In general, guiding principles for WNCPC curriculum framework projects must pay heed to new realities in how the world and our knowledge of it is now increasingly conceived of as multi-faceted, multicultural, interdependent and interrelated. Each curriculum framework is understood as an interrelated part of a larger whole. The overarching guiding principle of WNCPC curriculum frameworks, therefore, is that curriculum framework projects must be conceived as full landscapes of knowledge where teachers and students meet in the work of knowledge creation and learning (Scardamalia & Bereiter, 2003). The goal of the following five principles is to maintain the integral wholeness of knowledge as practiced in the world, and to provide guidelines for inviting teachers and students alike into these living fields of knowledge. They serve to provide a common vocabulary and a broad vision for the development of 21<sup>st</sup> century curriculum frameworks. None of these principles exists in a vacuum or in isolation; each relates to and depends on the other principles.

Curriculum framework projects acknowledge:

1. Depth and coherence are essential to deep understanding.
2. Diversity is a fundamental feature of a healthy, living system.
3. Every discipline is a cultural inheritance.
4. Competencies unite learning.
5. Learning and living well together in an interconnected world leads to sustainability.

**PRINCIPLE ONE: Depth and coherence are essential to deep understanding.**

WNCP curriculum framework projects need to take as their cue those principles, concepts, methods and ancestries that guide the organization and vitality of the discipline in question as it is lived, practiced and understood in the world. Curriculum frameworks designed to help our youth learn the landscape should be thought of as organized into fields of relations, the exploration of which is required if students are to learn their way around these fields. Subject matter content is important, but can only be experienced and learned well insofar as it *belongs to a coherent body of knowledge*. Isolated facts do not come “first” or “before” the landscape in which they appear. This image of “before” and “after” is a remnant of the industrial model of fragmented knowledge (Jardine, Friesen & Clifford, 2006) that has led to “curricula, textbooks, and teaching that are all ‘a mile wide and an inch deep.’ This preoccupation with breadth rather than depth, with quantity rather than quality...[leads to a] splintered character and poor work” (Schmidt *et al.*, 1997, pp. 3, 11). Therefore, WNCP curriculum frameworks must identify what is of most value, most fundamental and most significant within each discipline (Gardner, 2007) ensuring that, by design, today’s students develop: (i) deep understanding of complex ideas, questions and ways of working within the disciplines, and (ii) the capacity to work authentically, critically and creatively within these landscapes. Identifying these ideas, questions and ways of working within the disciplines, provides a strong, coherent structure to enable 21<sup>st</sup> century skills.

It is important for WNCP curriculum framework projects to move towards the image of knowledge as organized in networked, patterned landscapes. This is not just an image of how knowledge is *intradisciplinary* (how, *within a discipline*, knowledge is organized into living patterns of interdependence) but also how, in the world, many disciplines are often brought to bear to understand some issue or object in the world. In the world, knowledge authentically lives and works in ways that are *interdisciplinary*. Opportunities for interdisciplinary work that bring together different disciplines while plumbing the depths of the various disciplines, including the ways these disciplines are understood by various cultures and traditions, such as indigenous cultures, are essential to 21<sup>st</sup> century learning and curriculum development. Therefore, WNCP curriculum framework projects are constructed to align across disciplines. This involves:

- Identifying what is of most value, most fundamental and most significant in each discipline structured around how knowledge is coherently organized in the various disciplines. This coherence permits students to build connectedness, experience authenticity and gain depth of understanding. It also permits students to gain 21<sup>st</sup> century skills.
- Articulating each curricular area as a networked, patterned, living field of knowledge that is also bound generously to encompass various cultures, including indigenous ways of knowing, being and doing.
- Replacing what have become fragmented “facts” that are “covered” back into the living fields in which they belong and make sense.
- Developing assessment procedures that are in line with the modes of evidence, understanding, procedure and demonstration that are indigenous to each living discipline.
- Designing curriculum frameworks that recognize and promote an understanding of the ways that disciplines also work in interdisciplinary, interconnected ways.

## **PRINCIPLE TWO: Diversity is a fundamental feature of a healthy, living system.**

The organization and vitality of a discipline of knowledge is inherently multifaceted, multimodal and multicultural. Any topic within a discipline of knowledge *requires* something akin to Gardner's (2000) "multiple intelligences," not as a compromise to the differences in the ways that people learn<sup>2</sup>, but because *that discipline is itself multiple* and it therefore *requires* a multiplicity of approaches if the fullness and breadth of that knowledge is to be properly addressed. Curriculum framework projects should open up for teachers and students the multifaceted, multimodal character of the discipline in question as territories to be explored, understood and learned in multiple ways. Therefore, disciplined work must not be fragmented into sequenced, easy-to-difficult, concrete-to-abstract parts and then doled out to students *vis-a-vis* their perceived "learning needs." Nor should it be measured by the fragmented parts that are the most easily assessed. The depth and fullness of the discipline should be maintained so students can be supported and scaffolded to "learn their way around" the whole landscape according to their abilities, interests, background, skills and so on. This leaves the coherent depth and diversity of the disciplinary field intact. Students of varying learning abilities can thus work *together* in the same field of work, even though the work done in that field by each student need not be identical. Each student's learning and assessment of learning can be personalized, not by dividing up and fragmenting the field of work, but by opening up the whole, multifarious field for each student, and teaching them to each find their own way in and through it, in the collaborative company of their classmates, their teachers and their community, including those currently practicing in the field and Elders. This respects the diversity of students, the integrity of fields of knowledge and ways of coming to know within this landscape. It also indicates that collaborative, diverse work is central to a living landscape of knowledge as it works in the world. This prospect needs to form a central feature of any curriculum framework project.

This characteristic of and respect for diversity is common to all curricular framework projects. However, its particular range and characteristics will be discipline-specific. This involves:

- Designing curriculum frameworks that require, embrace and sustain multiple ways of knowing, including indigenous ways of knowing; multiple modes of evidence; assessment; design and presentation.
- Designing curriculum frameworks that allow local contexts to determine relevant topics of study. This would permit students and teachers with a wide array of interests, abilities, preferences and backgrounds, sensitive to and cognizant of their local context, to find work to do within and appropriate to the landscape being explored. Put the other way around, unlike industrially assembled fragments which require one right way of proceeding, fields of knowledge, as lived and practiced in the world, sustain and support a wide array of work and diversity as necessary to the living character of that field of knowledge.
- Designing curriculum frameworks in which collaborative work is pursued as an essential feature of a living landscape of knowledge.
- Designing assessment procedures that reflect the breadth and diversity of ways of knowing that are indigenous to a living field of knowledge.

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<sup>2</sup>This is not about learning styles. Labelling people as particular types of learners or as having a particular type of learning style is likely to limit rather than enhance learning. Coffield's (2004) work on learning styles has shown significant flaws in the underpinnings and evidence for many of the models currently in use (OECD, 2007, p.201).

### **PRINCIPLE THREE: Every discipline is a cultural inheritance.**

Every discipline of knowledge is a cultural inheritance. The specifics of its cultural ancestry are part of how it has come to be. Knowledge is part of an ongoing, living, multicultural conversation whose conclusions and norms continue to evolve with succeeding generations. Understood as living landscapes, the knowledge that has been entrusted to teachers and students through WNCP curriculum frameworks is full of stories, ancestries, bloodlines, debates and cultural and linguistic histories. These ancestries are very often culturally mixed, and are full of histories, stories, names and faces, debates, accomplishments, successes and defeats. Developing an understanding of such ancestries is part of “learning the landscape” of a discipline.

Moreover, each student and teacher brings to such learning his or her own, sometimes mixed, cultural inheritances. Learning the landscape of a discipline is therefore, in part, a meeting of cultures. Living landscapes of knowledge are narratively organized and created, linked to places and lives, and are not simply anonymously assembled and anonymously available. WNCP curriculum framework projects should encourage teachers and students to find those moments and locales of personal and cultural investment and interest in what is being learned. Questions like “Whose story is this?” “Who got to tell this story?” “What was/is the contested issue, for example, in Linneaus’ formulation of his species and kingdoms?” “What cultural presumptions about knowledge are at work in this landscape?” “What do other cultures’ ways of knowing, doing and being have to say about such matters in the world?” Among other advantages, this immediately links what goes on within the school walls to the local lives and practices of knowledge outside of those walls, thus ensuring authenticity. It invites linkages between and among school-based experiences, experts in the living fields of knowledge as practiced outside of the school, community experts and Elders, thus ensuring academic rigour.

In particular, all WNCP curriculum frameworks must respect, include and maintain the distinctiveness of the cultures of western and northern Canada, for knowledge itself is *multicultural*, not *monocultural*. This cultural diversity is inherent in the living character of knowledge itself and there is no culturally, historically or linguistically neutral landscape in which learning occurs. This involves:

- Developing WNCP curriculum frameworks that open up knowledge to its cultural, linguistic and social origins and reflect the multicultural and First Nations, Métis and Inuit realities of western and northern Canadian culture itself.
- Demonstrating how each seemingly separate curriculum framework is in fact, part of an ongoing, deeply cultural, linguistic and historical story. Landscapes of knowledge have tales to tell, figures who have been prominent and others who have been silenced or forgotten.
- Inviting students and teachers, in the culturally diverse settings of western and northern Canada, to reflect on their explorations of various landscapes of knowledge and the uniqueness of the locale in which learning is taking place.

### **PRINCIPLE FOUR: Competencies unite learning.**

Just as knowledge lives in the world in intradisciplinary landscapes and territories, so too, students’ and teachers’ exploration of these territories are themselves pursued by the whole person, “the whole child.” Although we can, and sometimes should, distinguish between cognition, emotion, knowledge, affect and skills, it is vital to remember that these distinctions are analytic tools, not an indication of separately existing realities.

To bring these lived realities into focus, all WNCP curriculum frameworks are designed based on competencies<sup>3</sup>. Competency-based WNCP curriculum frameworks must allow individuals to experience learning the ways of knowing, doing and being that resonate most strongly with the ways in which knowledge is held, passed on, worked with and created in the world. A competency-based curriculum creates ‘know how’—knowing how to act by making appropriate choices and the proper use of various resources in highly complex situations. It involves the ability to conform the knowledge-action, beyond automation, to the unique context depending on and connected to the specific, given situation worked, thereby promoting transfer to other situations and contexts using internal and external resources such as: prior knowledge, skills, human resources, networks, peers, interests, experiences, attitudes, values, skills and information. Competence builds self-awareness and support for learning through the use of metacognition, self-evaluation and self-regulation to convert learning skills. By way of illustration:

- The Quebec Education Program (QEP) (2004) is a competency-based curriculum. Using an example from the QEP (2004), a language competency might be conceived of in the following manner: “Writes a variety of genres for personal and social purposes” (chapter 5.1, p.119). Three key features of the competency are then articulated, evaluation criteria identified and outcomes detailed.
- The Arts, as created and practiced, are competency-based. One becomes competent, accomplished and masterful through the seamless integration of knowledge, skills and attitudes. Each informs the other, in a dynamic dialectic.
- Inuit Qaujimagatuqangit (IQ) is an education framework for Nunavut curriculum and is competency-based.

Curriculum development frameworks need to be mindful of the fact that students are concurrently involved in a wide array of ways of knowing, doing and being. They need to see the student as a participating, contributing person who is learning how to become competent—to become able, so that they might thrive in today’s complex world. The Tlîchô Community Services Agency acknowledges that young people need to become competent in the worlds of two people—the traditional world of the Tlîchô and the modern world that surrounds people today of the Northwest Territories. This competency is captured in the Tlîchô vision, “strong like two people.”

Becoming competent cannot happen through piecemeal contextualization. To be drawn into a living landscape of work and to ask how this knowledge fits into one’s life and fits with other landscapes of knowledge that are being concurrently learned, is what is meant by “authentic learning.” As with the principles of coherence (Principle One) and diversity (Principle Two), each student is attempting to shape a coherent, authentic life in the midst of a wide diversity of living landscapes of knowledge. This involves:

- Identifying what cross-curricular, key competencies (attitudes, skills and knowledge) are most worthwhile. Just as curriculum landscapes are living, integrated, diverse

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<sup>3</sup> A competency is a knowledge-action complex resulting from the mobilization and use of a common, efficient and conscious set of internal and external resources. Competencies require skills; however, competencies and skills are not synonymous. The OECD (2005) is clear that a “competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context. Competencies involve a mobilisation of cognitive and practical skills, creative abilities and other psychosocial resources such as attitudes, motivation and values” (p.4).

- systems, so too are those who are investigating these landscapes: teachers and students alike. Although it may be pedagogically appropriate to distinguish between various competencies, these competencies belong to a whole person, just as the facts and procedures of a discipline belong to a living whole.
- Discerning why and how these cross-curricular key competencies are authentic and worthwhile.
  - Identifying what competencies are essential to each of the disciplines.
  - Identifying ways to authentically connect and contextualize learning to build competencies. Piecemeal contextualization (e.g., “we’ll see later where this fits. For now, learn these facts.”) misses the insight that the idea of landscape brings. Relationships, interdependence and diversity do not merely provide the *context* for bits and pieces. They are *constitutive* of the reality of those bits and pieces. So too with learners. One does not become filled up with bits and pieces and then, at some subsequent activity, try to put things together. The learning sciences have demonstrated that putting things together, integrating, and asking how things work together, how things connect, is a persistent, constant, ongoing, activity, right from the earliest moments of human life.
  - Designing assessment procedures to assess students’ performances of understanding and growing competence to examine their performances and progress.

**PRINCIPLE FIVE: Learning and living well together in an interconnected world leads to sustainability.**

Sustainable development [economic, social and environmental] and social cohesion depend critically on the competencies of all of our population—with competencies understood to cover knowledge, skills, attitudes and values. (OECD, 2005, p.4)

Curriculum framework projects are directly linked to how knowledge is practiced in local, provincial, territorial, national and global communities (see Principle Three). Students are immersed in a continuum of these practices and are in the process of learning how to live well with the knowledge they are acquiring and creating and the competencies they are developing. In doing this, students both participate in and make contributions to the various communities that surround and, in various ways, define them. To ensure students live well in our knowledge society, WNCP curriculum frameworks need to be linked to diverse economic, social and environmental concerns, as well as to issues of citizenship and the well-being of our local, provincial/territorial and national aspirations and future. The principles of sustainability<sup>4</sup> require us to examine critically our knowledge, skills, priorities, habits, beliefs, values, attitudes and practices. Through this examination, we are able to balance dynamically the needs of society, the environment and the economy to achieve quality of life for all. WNCP curriculum framework projects thus foster links between student well-being and community well-being, with developing notions of self-identity, social responsibility and independence. All WNCP curriculum frameworks must address the three pillars of sustainable development (economic,

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<sup>4</sup> Sustainable development is: (i) “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (U.N. <http://www.un-documents.net/ocf-02.htm>), (ii) “interdependent and mutually reinforcing pillars” of sustainable development as economic development, social development, and environmental protection” (<http://www.who.int/hiv/universalaccess2010/worldsummit.pdf>).

social and environmental) to enable learners to participate in and contribute to society in ways that build identity, social responsibility, citizenship, independence and an ethical mind. This involves:

- Understanding knowledge, including indigenous knowledge, as a lived practice in the world that is linked to community well-being, individual well-being and ethical issues on the use and application of knowledge in the world, and therefore, is a critical factor for sustainable development.
- Explicitly linking a living knowledge of the world to the functioning and well-being of a democratic, diverse, multicultural and First Nations, Métis and Inuit society.
- Creating collaborative opportunities which bring together communities in shared activity—including elders, parents/caregivers, the broader community as well as links to knowledge practices in the local and global communities.
- Respecting other people in the local community and in other places of the world.
- Cultivating a sense of local, national and global citizenship, coupled with a concern for environmental stewardship.

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## Appendix A: Definition of Terms

### 21<sup>st</sup> Century Skills

Assessment and Teaching of 21<sup>st</sup> Century Skills working group 1: Defining 21<sup>st</sup> century skills have identified and organized 21<sup>st</sup> century under four headings: Ways of Thinking, Ways of Working, Tools for Working and Living in the World. Each topic heading lists the skills contained in that particular group:

#### Ways of Thinking

1. Creativity and innovation
2. Critical thinking, problem solving, decision making
3. Learning to learn, metacognition

#### Ways of Working

4. Communication
5. Collaboration (teamwork)

#### Tools for Working

6. Information literacy
7. Information and Communication Technology (ICT) literacy

#### Living in the World

8. Citizenship – local and global
9. Life and career
10. Personal and social responsibility—including cultural awareness and competence

(Binkley, et.al., unpublished)

### Academic Discipline

An academic discipline refers to a body of knowledge and a distinctive way of thinking using modes of inquiry that have been established by a scholarly community. An academic discipline is theoretically based and empirically defensible. Gardner (2007) states:

Disciplines represent a radically different phenomenon. A discipline constitutes a distinctive way of thinking about the world. Scientists observe the world; come up with tentative classifications, concepts and theories; design experiments in order to test these tentative theories; revise the theories in light of the findings; and then return, newly informed, to make further observations, redo classifications and devise experiments. Individuals who think scientifically are aware how difficult it is to ferret our causes; they do not confuse correlation (A occurs before B) with causation (A caused B); and they are aware that any scientific consensus is subject to being overthrown, either gradually or more rapidly in the wake of a dramatic new finding or a revolutionary theoretical paradigm (p.27).

### Competency

The etymological root of competence quite literally means the “sufficiency to deal with what is at hand.” As such, a competency is:

more than just knowledge and skills. Competency is the complex “know act” that encompasses the ongoing development of an integrated set of knowledge, skills, attitudes, and judgments required in a variety of different and complex situations, contexts and environments. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a

particular context. Competencies involve a mobilisation of cognitive and practical skills, creative abilities and other psychosocial resources such as attitudes, motivation and values. (OECD, 2005, p.4)

Tardif (2006) defines competency as “complex knowing how to act supported by the effective mobilization and combination of a variety of internal and external resources within a family of situations” (p.54). That is, a person’s ability to mobilize all the appropriate resources in various situations. Tardif (2006) uses the following five characteristics: (i) inclusive and integrative, (ii) combinatorial, (iii) developmental, (iv) contextual, and (v) evolutionary to describe the features of competency.

- (i) Inclusive and Integrative – Learners’ ability to integrate different resources and the capability to use a variety of internal and external resources (people, text, etc.).
- (ii) Combinatorial – Learners’ ability to combine a range of skills together thereby creating a rich interaction of resources, configuring and reconfiguring them according to the features and requirements required by the situation.
- (iii) Developmental – Learners’ ability to keep on developing themselves as they continue to mature.
- (iv) Contextual – Learners’ ability to adapt to the situation, context or environment in which they find themselves. It is the ability to discern “which action to act” and “acting that action.” Fully understanding the context, the learner knows what action to take, and takes the appropriate action. The learner knows what action to take depending on the context and across a variety of contexts, including complex situations, contexts and environments.
- (v) Evolutionary – This characteristic acknowledges that learners need to continually adapt to changing circumstances. They are fully aware that ideas, situations, contexts and environments continually evolve and they need to be able to adapt to the changing circumstances.

The work of the OECD (2005) extended by Tardif (2006), highlights the fundamental differences between competency and skills. They emphasize that becoming competent requires the development of skills but skills are not synonymous with competency. This becomes exceptionally evident in examining Tardif’s extensive conceptualization of competency.

While the articulation of competency and competency-based is a relatively new idea in western curriculum, it has ancient roots in First Nations, Métis and Inuit traditions and ways of knowing, doing and being. Ideas of competency are a fundamental feature of these cultures. Within many First Nations, Métis and Inuit cultures, a person who is competent is described as “able.”

## **Curriculum**

Four questions are fundamental to curriculum:

- (i) What knowledge is most worthwhile?
- (ii) Why is it worthwhile?
- (iii) How is it acquired or created?
- (iv) How is curriculum housed, cared for, assessed and made accessible in the world?

The field of curriculum studies is cluttered by an array of dissimilar definitions of the term curriculum. In empirical studies, definitions of curriculum run the gamut from those that would have the term signify everything that takes place in a classroom to others that restrict its meaning

to only the topics that are defined as instructional requirements in the official policy of an educational system. There are also those that limit the definition of curriculum to only those topics actually taught by teachers.

How we conceive of curriculum and curriculum-making is important because our conceptions and ways of reasoning about curriculum reflect and shape how we see, think and talk about, study and act on, the education made available to all students. Our curriculum conceptions, ways of reasoning and practice cannot be value free or neutral. They necessarily reflect our assumptions about the world, even if those assumptions remain implicit and unexamined.

The idea of curriculum is hardly new, but the way we understand and theorize it has altered over the years, and there remains considerable dispute as to meaning. It has its origins in the running/chariot tracks of Greece. It was, literally, a course. In Latin *curriculum* is a racing chariot; *currere* is to run. A useful starting point for us here might be the following definition: “All the learning which is planned and guided by the school, whether it is carried out in groups or individually, inside or outside the school.”

There are four dominant orientations to curriculum:

1. Curriculum as a syllabus to be transmitted. This approach to curriculum which focuses on syllabus is only really concerned with content. Curriculum is a body of knowledge-content and/or subjects. Education in this sense is the process by which these are transmitted or “delivered” to students by the most effective methods that can be devised.
2. Curriculum as product. The dominant modes of describing and managing education today are couched in the productive form. Education is most often seen as a technical exercise. Objectives are set, a plan drawn up, then applied and the outcomes (products) measured. It is a way of thinking about education that has grown in influence in Alberta since the late 1970s with the rise of the concern about competencies.
3. Curriculum as process. In this sense curriculum is not a physical thing, but rather the interaction of teachers, students and knowledge. In other words, curriculum is what actually happens in the classroom and what people do to prepare and evaluate. What we have in this model is a number of elements in constant interaction. It is an active process and links with the practical form of reasoning set out by Aristotle.
4. Curriculum as praxis. In this approach, the curriculum itself develops through the dynamic interaction of action and reflection. That is, the curriculum is not simply a set of plans to be implemented, but rather is constituted through an active process in which planning, acting and evaluating are all reciprocally related and integrated into the process. At its centre is praxis: informed, committed action.

### **Curriculum Framework**

A curriculum framework establishes and organizes what is worth learning and the agreed upon associated outcomes for the Western provinces and Northern territories. It is meant to serve as a foundational document for Western provinces and Northern territories wishing to further develop jurisdictional curricula.

## **Interdisciplinary**

Interdisciplinary studies cross traditional boundaries between academic disciplines or schools of thought as new needs and professions emerge. Interdisciplinarity involves researchers, students and teachers in the goals of connecting and integrating several academic schools of thought, professions, or technologies—along with their specific perspectives—in the pursuit of a common task. For example, the epidemiology of AIDS or global warming requires understanding of diverse disciplines to solve problems.

The adjective “interdisciplinary” is most often used in educational circles when researchers from two or more disciplines pool their approaches and modify them so that they are better suited to the problem at hand, including the case of the team-taught course where students are required to understand a given subject in terms of multiple traditional disciplines. For example, the subject of land use may appear differently when examined by different disciplines such as biology, chemistry, economics, geography, and politics.

## **Knowledge**

Knowledge is a multifaceted idea with many forms. Before 1963 philosophers mostly agreed that knowledge was justified true belief. However, Edmund Gettier’s now famous criticism of this account destroyed the agreement and stimulated a plethora of attempts to provide an improved definition. Philosophers wanted a better analytical account of what knowledge could be taken to be. As it happened, they did not definitely succeed in this endeavor: no generally accepted conception or account of the desired kind was ever created which makes providing a succinct definition somewhat problematic. That said, for the purposes of this document knowledge is defined as follows.

Our definition of knowledge *includes* information about the world; methods or ways of gaining such information; methods or ways of providing evidence of such information; ways of challenging, building upon and improving such information; the archives of information; stories; ways of experiencing the world that we have inherited from our ancestors; and so on. As such, knowledge is both noun and verb.

Knowledge is encoded in cultural forms (texts, monuments, libraries, galleries, films, on-line resources) and it is present and often presumed in the very language and terminology we use day to day.

Knowledge can be gained using multiple modes: it can be gained aesthetically, logically, metaphorically, experimentally, through reasoning and argument, through precedent and example, through mathematical means or the work of scholarship and textual exegesis. As witnessed by curriculum and programs of study, it is commonly organized in living fields or disciplines each of which have characteristic ways of developing new knowledge, demonstrating and referring to the knowledge already housed in that discipline. Moreover, each discipline of knowledge has examples and exemplars of how it is actually working in the world that surrounds students and teachers; it has old and established knowledge that is now taken for granted in a field as well as examples of how that discipline is currently being used, developed, challenged and grown.

Knowledge therefore *includes* information, “facts,” but these are meaningless outside of the living disciplinary contexts and ways of knowing in which they count as facts. It is a fact, for example, that Picasso greatly influenced the history of Western art, but this “fact” is understandable and arguable only within the discipline of art history, art appreciation, how it

builds itself as a tradition of knowledge and experience. The same is true of the atomic weight of a chemical element, that it counts as a “fact” only *within its field* and that field’s ways of knowing, accounting, giving evidence and so on. Knowledge is therefore essentially, not accidentally, contextual and field-based.

### **Landscape**

What is new in curriculum and curriculum development for the 21<sup>st</sup> century is a shift in the images we use, to an image of knowledge as a complex organic network organized in living fields, territories or “landscapes.” This is a move away from knowledge pictured as fragmented pieces put together, one piece at a time, in a linear fashion on an assembly line. Learning is analogous to learning to live in an environment: learning your way around, learning what resources are available and learning how to use those resources in conducting your activities productively and enjoyably. Knowing where one is in a landscape requires a network of connections that link one’s present location to the larger space.