

***Indigenous Knowledge as 21st Century Education:  
A Taxonomy of 21st Century Learning and Educational Leadership as  
Inuit Qaujimajatuqangit (IQ)***

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**Abstract:**

This paper presents a taxonomy to facilitate 21st century learning and educational leadership in action. With reflective insight from an Indigenous educational leadership perspective, it extends the dialogue surrounding Canada's urgent need to transform its public education systems into learning communities that inspire creativity, innovation, and social responsibility. As an alternative to pedagogical concepts that focus on teaching rather than learning, 21st century learning and educational leadership is illustrated as Indigenous knowledge in response to social, environmental, economic, and technological change. The taxonomy emerged from a theoretical analysis of Canadian 21st century learning and educational leadership competencies paralleled with the Indigenous epistemology of Inuit Qaujimajatuqangit (IQ). Examples of 21st century learning and educational leadership competencies, as IQ, are provided in context along with implications for future educational leadership in Canada.

***Key Words:***

21st Century Education, Indigenous Knowledge, Inuit Qaujimajatuqangit (IQ), Educational Leadership, Pedagogical Taxonomy.

*“The underlying aim of education is to further [wo/]man’s unending search for truth. Once [s/]he possesses the means to truth, all else is within [her/]his grasp. Wisdom and understanding, sensitivity, compassion, and responsibility, as well as intellectual honesty and personal integrity, will be [her/]his guides in adolescence and [her/]his companions in maturity.”*

*(Justice Emmett M. Hall & Lloyd A. Dennis, 1968).*

## Introduction

The idea for this paper began as a conversation between two researchers interested in exploring the cultural relevance of 21<sup>st</sup> century education from an Indigenous educational leadership perspective. Susan, a doctoral student and instructor in the Faculty of Education at Brock University, and Erin, an Indigenous scholar, educational leadership consultant, and instructor at the College of the Rockies and the University of Prince Edward Island, first began their dialogue after attending an education writing retreat in Southern Ontario. During the retreat, we noticed that many of the attendees’ writing projects centered on 21<sup>st</sup> century teaching practices. As most of our experience and understanding of 21<sup>st</sup> century education focused on learning and leadership strategies embedded with social and cultural difference, we found this curious. This difference in focus, from teaching practices to learning principles and educational leadership strategies, in the context of Indigenous knowledge, set the stage for which we began our discussions.

Our 21<sup>st</sup> century education discussions started with an overview of the background conversations in the context of public education in Canada. Within this context, we defined and compared views of the conventional teacher-centered education system and the transformative 21<sup>st</sup> century education system and its leadership competencies. The overarching questions we considered in this section were: 1) Why is there an urgent need for the Canadian public education system to embrace 21<sup>st</sup> century education learning, and 2) What are some of the implementation challenges in terms of educational leadership? Next, we extended our conversation by incorporating the epistemology of Inuit Qaujimajatuqangit (IQ) as an example of Indigenous knowledge. In this section, we defined the principles of IQ. Next, using learning and educational leadership examples of IQ *in action*, we mapped 21<sup>st</sup> century learning and leadership competencies onto IQ principles to create the Docherty-Woodford Taxonomy of 21<sup>st</sup> Education Learning and Leading Competencies as Inuit Qaujimajatuqangit (IQ). In the last section, using our taxonomy, we begin a new conversation to discuss implications for future educational leadership in Canada and beyond.

## The Background Conversation - The Education Context in Canada

Canada, a country comprised of ten provinces and three territories, does not have a centralized system of K-12 education. Individual government branches in each of its 13 jurisdictions are accountable for the administration, delivery, and evaluation of public education programs at the elementary and secondary school levels. Within each of these jurisdictions, “every province and territory set up educational structures and institutions that were unique to it and that, despite the many similarities, reflect the

distinctive character of regions separated by considerable distances and the diversity of the country's historical and cultural heritage" (CMEC, 2001, p. 5).

In 1999, the new territory of Nunavut was created and in 2008, the Nunavut Education Act was implemented. Stipulated within this Act, "The public education system in Nunavut shall be based on Inuit societal values and the principles and concepts of Inuit Qaujimajatuqangit." (Nunavut Education Act, 2008, p. 2). As such, incorporation of Inuit culture into all aspects of the education system, including community consultation and participation of parents and elders is mandated.

Although Canadian K-12 education systems across the country share many similarities, there are distinct geographical, historical and cultural differences that reflect priorities when it comes to how 21<sup>st</sup> century education competencies are articulated and implemented in the classroom. A recent report issued by the Action Canada Task Force indicated that, "the application of 21st century learning across provinces is largely inconsistent. Provincial disparities exist in terms of how 21st century learning is articulated in policy" (Boudreault, Haga, Paylor, Sabourin, Thomas, & van der Linden, 2013, p. 3). Surrounding the role of educational leadership, questions have been raised as to whether inconsistencies in its implementation can be alleviated by creating connections outside mainstream education systems through 21st century learning.

### ***Conventional Teacher-Centered Education View***

Conventional teacher-centered education is a type of classroom instruction intended to transmit a particular set of facts, competencies, and canons onto its students for future social and economic success. Developed to equip students with the necessary skills and knowledge to succeed in an industrialized society, in this type of education process, teachers played an essential role in transmission of knowledge (Boudreault, Haga, Paylor, Sabourin, Thomas, & van der Linden, 2013). Their duties were to instill upon students' minds, by habit or persistent instructions, "a limited body of facts and principles, mainly through rote learning" (Hall-Dennis Report, 1968) whereby successful students could "replicate what they were taught" (C21, 2015). Classroom rules were developed by teachers rather than co-constructed with students. Learning expectations were fixed for all students rather than structured to reflect and / or accommodate individual differences in students' learning abilities (Garrett, 2008). Teachers were the sole leaders of classroom learning and members from the larger community in which students lived were not invited into the schools "to enrich and broaden the learning opportunities for students" (Garrett, p. 35).

### ***Transformative Educational View - 21st Century Education***

Compared to conventional teacher-centered education systems that focused on the transmission of facts and procedural knowledge, the transformative view of education is a social process that positions teachers as facilitators and students as co-constructors of their learning (C21, 2015). 21st century learning represents a "shift in emphasis from the instruction of facts to a model which focuses on competencies such as critical thinking, character, creativity, innovation, as well as digital and computer literacy" (Boudreault, Haga, Paylor, Sabourin, Thomas, & van der Linden, 2013, p. 3). "While schooling tends to condition people to live within a given structure, to cooperate with authority, and to think only within the box, innovation arises out of creativity and

compassion, allowing us to shift toward more natural and ecological models” (Cameron, 2006, p. 1). This need for education reform has been linked to an unprecedented advancement in technological innovation and international political development (Ananiadou & Claro, 2009; Boudreault, Haga, Paylor, Sabourin, Thomas, & van der Linden, 2013; C21, 2012; Government of Ontario, 2016; Schleicher, 2015). The current movement within the education system is to enable its learners to navigate in an information rich era, with the appropriate skills and knowledge to succeed in a rapidly changing global economy.

### **21st Century Education Competencies**

According to the Organization for Economic Co-operation and Development, “A competency is more than just knowledge or skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context” (Rychen & Salganik as cited in Ananiadou & Claro, 2009, p. 4). In terms of the 21<sup>st</sup> century discourse, this definition has been extended to include the requirement for growth and development not just in the cognitive and psychomotor knowledge domains, but also in the affective knowledge domain which is associated with social skill development, ethical reasoning, attitudes and feelings (Government of Ontario, 2016).

In Canada, the national non-profit organization called Canadians for 21<sup>st</sup> Century Learning and Innovation (C21) has spearheaded much of the work in creating the vision and framework for 21<sup>st</sup> century education (Bell, 2016). In their 2016 “Shifting Minds 4.0 Shifting Systems for Learning and Innovation” document, C21 identified 7 competencies for learning and leading. These competencies, which are defined in Table 1, are: 1) creativity & innovation, 2) critical thinking, 3) collaboration, 4) communication, 5) character, 6) culture & ethical citizenship, and 7) computer & digital technology.

**Table 1: Learning and Leading Competencies for 21<sup>st</sup> Century Education**

Competency	Definition
1: Creativity & innovation	New ideas and bold possibilities.
2: Critical thinking	Fresh insights and durable solutions.
3: Collaboration	Partnerships that work.
4: Communication	Making sense and expanding perspectives.
5: Character	Reaching higher and growing stronger.
6: Culture & ethical citizenship	Sharing what we value.
7: Computer & digital technology	Transforming how we learn and lead.

*(Note: Adapted from C21's 7Cs for Learning and Innovation, 2016)*

### ***Leadership Challenges for 21st Century Education Implementation***

Although coined under the heading of 21<sup>st</sup> century education, the ideas behind 21<sup>st</sup> century competencies are neither novel nor explicit to the 21<sup>st</sup> century (Boudreault, Haga, Paylor, Sabourin, Thomas, & van der Linden, 2013). What challenges the 21<sup>st</sup> century discussion are the issues surrounding effective leadership strategies for the successful integration of these competencies into the school community. In a study by the Alberta Teachers' Association (ATA), major findings on challenges faced by administrators are summarized as follows: 1) the diversity of the students, 2) the changing family, 3) teaching and learning conditions, 4) technology, 5) economy, and 6) social and cultural influences (ATA, 2014). In this regard, to be effective and help improve programs for children, principals had to take an active role in their schools and become instructional leaders. They had to be willing to create a vision about what good schools and classrooms were, and be willing to equip people with the skills to reach that goal. For many principals, this was a radical departure from how they defined themselves. (Tompkins, 1999, ch. 6, p. 2)

As a way forward, the ATA suggested strategies to alleviate leadership challenges. Among these strategies were teaching and learning for diversity, collaborating and building professional capacities, building family and community relationships, using technology for creative learning, and promoting lifelong learning (ATA, 2014).

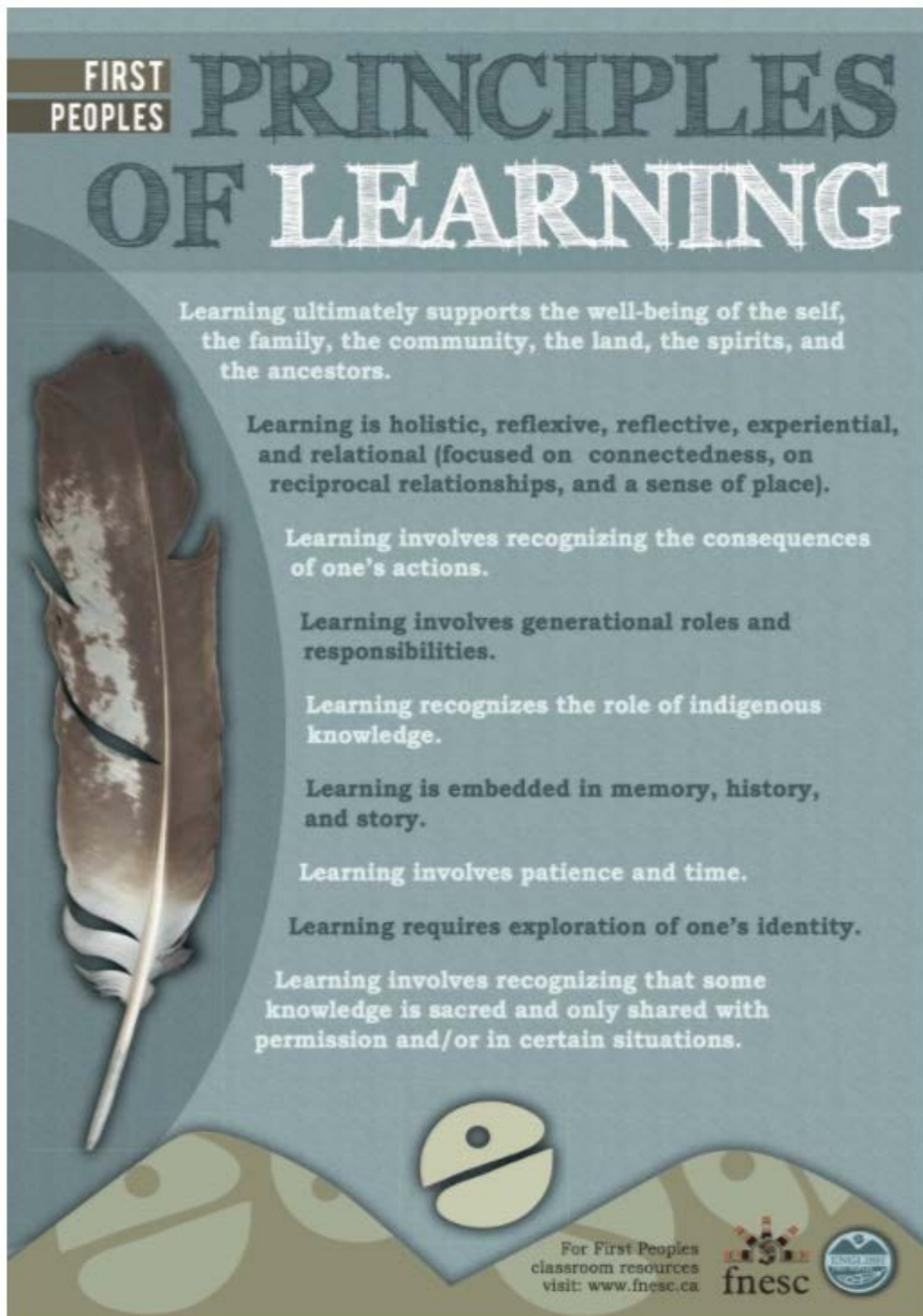
### ***Extending the Conversation with an Indigenous Knowledge Perspective***

The need to include an Indigenous knowledge perspective into the Canadian educational systems has been on the forefront of education leaders' discussions for decades. Recently, through the release of the Truth and Reconciliation Commission of Canada's final report, this issue has been heightened so that now the general Canadian public has become aware of its necessity. As cited in the report, "to build for the future, Canadians must look to, and learn from, the past" (Truth and Reconciliation Commission, 2015, p.8). In the realm of 21<sup>st</sup> century education, we have extended this conversation from the competencies set forth by looking at how Indigenous societal principles are used as a basis for learning and educational leadership.

### ***Indigenous Knowledge and Principles of Learning***

For people of First Nations, Metis and Inuit ancestry, Indigenous knowledge is understood as knowledge that has always been true (refer to Figure 1, "*First Peoples Principles of Learning*"). It is the "dynamic way in which the residents of an area have come to understand themselves in relationship to their natural environment and how they organize that folk knowledge of flora and fauna, cultural beliefs, and history to enhance their lives" (Semali & Kincheloe, 1999, p. 3). The First Peoples Principles of Learning, a classroom resource used in British Columbia schools and created by the First Nations Education Steering Committee, has become fundamental in understanding the learning needs of First Peoples. Thus, in the leadership process, it is important for leadership to not only reflect on the principles, but connect them to Indigenous Knowledge in creating the leadership vision that reconciles the past and validates the experiences of First Peoples throughout the leadership process.

**Figure 1: First Peoples Principles of Learning**





To reflect these values, as part of her educational role within the Indigenous community, Erin created a graphic, (refer to Figure 2, “*Leadership with Indigenous Values*”) for the Principals to use as tool when creating their school visions.

**Figure 2: Leadership with Indigenous Values**



Because each Indigenous group is geographically located in different regions of Canada, accordingly they developed different languages, histories, and cultural traditions unique to their Peoples. Yet despite these differences, Indigenous Peoples share similar guiding principles, traditional values, and foundational worldviews (Alberta Education, 2005). Traditional Indigenous education is based upon these worldviews, “it is a holistic process where learning takes place across different spheres of human experience including spiritual, physical, emotional and mental dimensions. . . Spirituality, relationships and the expression of traditional values are the heart” (Alberta Education, 2005).

### ***Inuit Qaujimajatuqangit (IQ) Principles “In Action”***

*“At the heart and soul of Inuit culture are our values, language, and spirit. These made up our identity and enabled us to survive and flourish in the harsh Arctic environment. In the past, we did not put a word to this; it was within us and we knew it instinctively. Then, we were alone in the Arctic but now, in two generations, we have become part of the greater Canadian and world society. We now call the values, language, and spirit of the past Inuit Qaujimajatuqangit.” – (Nunavut Tunngavik Incorporated, 2000)*

As an example of an Indigenous knowledge perspective, we used the principles of Inuit Qaujimajatuqangit (IQ), as this was something Erin was familiar with through educational leadership work. Translated directly, Inuit Qaujimajatuqangit (IQ) means “that which Inuit have always known to be true” (Tagalik, 2012). An epistemology reflective of Inuit societal values, the Government of Nunavut has recognized eight principles of IQ that “incorporates traditional Inuit knowledge into modern, everyday practices” (Government of Nunavut, Department of Culture and Heritage). IQ principles, defined in Table 2, are built upon “a body of accumulated knowledge of the environment and the Inuit interrelationship with the elements, animals, people and family” (Government of Nunavut, Department of Culture and Heritage).

**Table 2: Inuit Qaujimajatuqangit (IQ) Principles**

IQ Principles	Definition
1: Inuuqatigiitsiarniq	Respecting others, relationships and caring for people.
2: Tunnganarniq	Fostering good spirits by being open, welcoming and inclusive.
3: Pijitsirniq	Serving and providing for family and/or community.
4: Aajiiqatigiinniq	Decision making through discussion and consensus.
5: Pilimmaksarniq / Pijariuqsarniq	Development of skills through observation, mentoring, practice, and effort.
6: Piliriqatigiinniq / Ikajuqtigiinniq	Working together for a common cause.
7: Qanuqtuurniq	Being innovative and resourceful.
8: Avatittinnik Kamatsiarniq	Respect and care for the land, animals and the environment.

*(Note: Adapted from the Government of Nunavut)*



Over the past 20 years, the Nunavut Government has worked towards reforming their educational system so that it is pedagogically grounded in Inuit Qaujimajatuqangit (IQ) as a lived, embodied curriculum centering on the traditional knowledge and values of the Inuit Peoples. As part of this reform, the Kindergarten to Grade 12 Principal Qualification Program is constructed on the foundational knowledge of IQ learning and leadership. To model learning and leadership IQ principles in action, school Principals are required to identify and develop best-practice strategies that foster and include IQ in curriculum. In the capacity of teaching Indigenous Leadership graduate studies to educators and administrators, Erin created a graphic (refer to Figure 3, “Activities of Leadership with IQ Principles”) to assist learners reflect the values within the educational leadership context described in the following sections. Selected directly from Erin’s educational leadership work with Nunavut School Principals, examples of 21st century learning and leadership are presented as IQ in action, in response to social, environmental, economic and technological change.

### ***Creativity and Innovation – Qanuqtuurniq***

In a 21st century education system, creativity and innovation may best be described as, “as the pursuit of new ideas, concepts, or products that meet a need in the world...[and] as the realization of a new idea in order to make a useful contribution to a particular field.” (Government of Ontario 2016, p. 13). Creativity and innovation in the form of Qanuqtuurniq, being innovative and resourceful, are essential to life in the north and for Indigenous people where it’s necessary to work together, collaborate, be flexible and persevere. Qanuqtuurniq applies to everyday life. To the struggles of survival not only as humans in extreme climates, but in education where it may be necessary for students to miss school for harvest and hunting activities.

### ***Critical Thinking – Qanuqtuurniq***

Critical thinking involves “the ability to design and manage projects, solve problems, and make effective decisions using a variety of tools and resources” (Fullan, 2013, p. 9). This skill requires students to “acquire, process, interpret, rationalize, and critically analyze large volumes of often conflicting information to the point of making an informed decision and taking action in a timely fashion” (C21, 2012, p. 10). An example of Qanuqtuurniq in action for leadership is often the ability to solve a problem. In recent years, fires have destroyed schools in the Arctic. In 2015, a fire destroyed Peter Pitseolak in Cape Dorset. The result is the sudden need for space and resources for 150 students and 22 staff.

### ***Collaboration – Piliriqatigiinniq / Ikajuqtigiinniq and Aajiqatigiinniq***

The key to collaboration, is “the ability to interact positively and respectfully with others in creating new ideas and developing products” (Government of Ontario, 2016). This involves working in teams with other people across cultures. An example of developing skills through observation, working together for a common cause, and decision making through discussion (Piliriqatigiinniq / Ikajuqtigiinniq and Aajiqatigiinniq) collaboration is used in leadership when participating in talking circles. Talking circles allow people to work towards a goal and solve problems in ways that everyone can participate and express themselves.

**Figure 3: Activities of Leadership with IQ Principles**

# Activities of Leadership with IQ Principles

<h2>Inuuqatigiitsiarniq</h2> <ul style="list-style-type: none"> <li>• define roles for stakeholders</li> <li>• create clearer models of leadership principles for students</li> <li>• body language</li> <li>• open mindedness</li> <li>• caring attitude</li> </ul>	<h2>Tunnganarniq</h2> <ul style="list-style-type: none"> <li>• welcoming each morning</li> <li>• smile</li> <li>• be visible</li> <li>• active listening</li> <li>• create a sense of belonging for all</li> </ul>
<h2>Pijitsirniq</h2> <ul style="list-style-type: none"> <li>• community feasts and food programs</li> <li>• peer support and coaching</li> <li>• cultural awareness activities</li> <li>• extra-curricular</li> <li>• community engagement</li> </ul>	<h2>Aajiiqatigiinni</h2> <ul style="list-style-type: none"> <li>• consensus leadership</li> <li>• talking circles</li> <li>• create opportunities of involvement</li> <li>• student input in decisions</li> <li>• engagement in community, region, province, country and world</li> </ul>
<h2>Pilimmaksarniq / Pijariuqsarniq</h2> <ul style="list-style-type: none"> <li>• collaboration</li> <li>• relationship building</li> <li>• service</li> <li>• advocacy</li> <li>• support of all</li> </ul>	<h2>Piliriqatigiinni / Ikajuqsarniq</h2> <ul style="list-style-type: none"> <li>• work for the common good</li> <li>• advocacy</li> <li>• service</li> <li>• group priorities</li> <li>• consensus leadership</li> </ul>
<h2>Qanuqtuurniq</h2> <ul style="list-style-type: none"> <li>• networking</li> <li>• perseverance</li> <li>• creativity</li> <li>• innovation</li> <li>• problem solving</li> </ul>	<h2>Aajiiqatigiinni Kamatsiarniq</h2> <ul style="list-style-type: none"> <li>• environmental education initiatives</li> <li>• relationship to land &amp; water</li> <li>• outdoor education</li> <li>• traditional knowledge acquisition</li> <li>• elders and community engagement</li> </ul>

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### ***Communication – Tunnganarniq***

In addition to using the spoken and written word, 21st century communication skills involve effective communication overall including positive classroom communication interventions (Dilley, Fishlock, & Plucker, n.d.). An example of how Tunnganarniq is used for effective communication is through developing relationships and team building activities. Creating safe and caring schools that accept new people and respect differences is an act of fostering good spirits, being open and welcoming.

### ***Character – Inuuqatigiitsiarniq and Pijitsirniq***

The competency of 21st century character, “qualities of the individual essential for being personally effective in a complex world including: grit, tenacity, perseverance, resilience, reliability, and honesty” (Fullan & Scott, 2014, p. 6). In schools, character skills are often taught through character education programs that start with a child learning to care about themselves then leaning to care for other people, then serving and providing for the community at large. In Inuuqatigiitsiarniq and Pijitsirniq, the focus is caring for people, along with serving and providing for family and community. An example that leadership can implement are breakfast and snack programs at the school to ensure hunger does not impact learning.

### ***Cultural and Ethical Citizenship – Avatittinnik Kamatsiarniq and Pijitsirniq***

Competency development of cultural and ethical citizenship is dynamic complex. It involves the ability to “appreciate cultural and societal diversity at the local, national and global levels [while also being able to] critically analyze the past and present and apply those understandings in planning for the future” (C21, 2012, p. 11). This requires learners to understand key concepts related to “democracy, social justice and human rights [and have the] disposition and skills necessary for effective civic engagement.” (C21, 2012, P. 11). Thoughtful consideration for the environment is an important component of Avatittinnik Kamatsiarniq and Pijitsirniq. An example demonstrating respect and care for the land, animals, environment, and caring for others as cultural and ethical citizenship, includes cultural awareness activities, bringing elders into the school for traditional knowledge activities and planning community environmental initiatives.

### ***Computer and Digital Technology – Pilimmaksarniq / Pijariuqsarniq***

Because 21st century learning and leadership is immersed in technology and digital literacy, “the capacity to use computers and digital resources to access information and create knowledge, solutions, products and services” (C21, 2012, p. 12) is key. An example of how to support digital learning through Pilimmaksarniq and Pijariuqsarniq, is development of skills through gathering, understanding, and using information to improve community life. “Inuit leaders and educators have guided the development of locally owned and operated broadband networks, equipment, and the associated education applications in their communities. With these developments, people living in remote areas are innovating and creating choices in the delivery of new training programs and services. With digital tools and networks... Parents and children are now able to remain in their communities to complete their education in familiar and safe spaces” (Beaton & Carpenter, 2016)

## Mapping 21st Century Education Competencies onto Inuit Qaujimajatuqangit (IQ)

To create our taxonomy (refer to Figure 4, the “Docherty-Woodford Taxonomy of 21st Century Learning and Leading Competencies as Inuit Qaujimajatuqangit (IQ), we mapped 21st century learning and leadership competencies onto the principles of Inuit Qaujimajatuqangit (IQ). We did this by looking at different ways that 21st century learning and leadership are enacted in the Nunavut Principal Qualification program as Inuit Qaujimajatuqangit (IQ). This connection creates a path for educational leaders to embrace 21<sup>st</sup> century competencies through an Indigenous knowledge perspective.

**Figure 4: Docherty-Woodford Taxonomy of 21st Century Learning and Leading Competencies as Inuit Qaujimajatuqangit (IQ)**



## ***New Conversations - Implications for Future Educational Leadership***

*“To build for the future, Canadians must look to, and learn from, the past.”  
(Truth and Reconciliation Commission, 2015, p.8)*

The Docherty-Woodford Taxonomy of 21st Education Learning and Leading Competencies as Inuit Qaujimajatuqangit (IQ) illustrates a strategy for education learning and leadership across ability, age, and culture. It allows for diverse ways of community participation in student learning with the additional involvement of parents, elders and Indigenous scholars. The ideology behind our taxonomy is that together, individuals as part of a greater community consensus, work towards defining and developing the learning and leadership competencies required for sustainable living in response to social, environmental, economic, and technological change. Our taxonomy illustrates the types of educational activities linked to the transfer of knowledge between IQ principles and 21st century learning and leadership competencies. This taxonomy is relevant, timely and is easily adaptable to reflect current social, cultural, and political issues in education.

In their “Living and Learning” report of the aims and objectives of education in the schools of Ontario, Justice Emmett M. Hall & Lloyd A. Dennis (1968) stated that ““Education in the future will require a greater public involvement, a greater partnership between the home and school, between the community and the school. The school cannot be indifferent to the social conditions of the area it serves.” The Docherty-Woodford Taxonomy of 21st Education Learning and Leading Competencies as Inuit Qaujimajatuqangit (IQ) clearly demonstrates how this critical and often overlooked perspective of education may easily be connected. The nature of our taxonomy is not to create increased inconsistencies in schools with the implementation of 21st century competencies, but to show how 21st learning and leading competencies can be interlinked with a traditional Indigenous knowledge perspective in response to social, environmental, economic, and technological change.

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