SOUL OF SOVEREIGNTY
The Impact of Culturally Responsive Education on the Academic Achievement of First Nations Students

Author: Kahontakwas Diane Longboat
Prepared for the AFN Education, Jurisdiction and Governance Sector
# TABLE OF CONTENTS

## INTRODUCTION

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Page 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td></td>
</tr>
</tbody>
</table>

## Historical and Political Context

| Canada’s International Obligations: Paving The Way Forward | Page 10 |
| The Canadian Landscape: The Momentum for Change | Page 13 |
| Current Initiatives | Page 18 |

## Methods

| Review Process | Page 20 |
| Document Analysis | Page 21 |
| Limitations | Page 21 |

## INTERNATIONAL EFFORTS FOR CULTURALLY RESPONSIVE EDUCATION

### UNITED STATES

| Legislative and Policy Directives | Page 24 |
| Best Practices in Culturally Responsive Education | Page 26 |

### AUSTRALIA

| Legislative and Policy Directives | Page 30 |
| Best Practices | Page 41 |
| Best Practices in Early Learning | Page 42 |
| Best Practices in Culturally Responsive Pedagogy | Page 44 |
AOTEAROA: NEW ZEALAND

From Colonization to Activism for a Bicultural Society  Page 46

Best Practices in Early Learning  Page 49

The Move To A Culturally Responsive Curriculum  Page 51

Best Practices in Elementary Education  Page 56

Best Practices in Secondary Education  Page 60

Culturally Effective and Responsive Teaching Profile  Page 64

Hikairo Rationale  Page 66

Best Practices in Special Education  Page 67

THE RELATIONSHIP OF CULTURE TO ACADEMIC ACHIEVEMENT FOR FIRST NATIONS STUDENTS

Culturally Responsive Education: A Quiet Revolution Coming of Age  Page 69

Culturally Responsive and Relational Education: The Soul of Sovereignty  Page 70

What is Culturally Responsive Education?  Page 72

Evidence Based Results for the Efficacy of Culturally Responsive Education  Page 75

Why Use Culturally Responsive Education In The Classroom?  Page 87

Culture and Language Programs in the Schools: The Impact on Student Achievement  Page 90

Linguistic and Cultural Congruence Between Classroom and Community  Page 91
Culturally Responsive Assessment Tools
Influence of Cultural Discourse on Language Learning
Culturally Effective Pedagogy for Professional Development
Self Concept, Identity, and Self Reflection
International Sharing of Promising Practices

CULTURAL NEUROSCIENCE

A Multi-Disciplinary New Field of Study
Page 147

Functional Imaging To Map Neural Processes
Page 149

Interventions
Page 150

MBE Science
Page 154

Culturally Responsive Test Performance
Page 155

RECOMMENDATIONS FOR STRATEGIC PLANNING
Page 160

Teacher Training and Professional Development Courses

Research Highlighting Promising Practices

Research: Inquiry Into Practice

Educational Leadership

Indigenous Language Learning

Theoretical Framework

Neuroscience

Learning Indigenous Languages and Cultural Practices
Teaching Children From Poverty and Trauma

A Network of Research Alliances and Information Sharing

Strength Based Paradigm: Framework For Informing Policy
Economic Study of the Social Return,
Social Capital, Child Exclusion Index and
Economic Return To Society of a Well
Educated First Nations Population

A Large Scale Study of Educational
Outcomes

Comparative Case Studies of First Nations
Schools

A National Institute of Research in First Nations
Education: Driving Educational Reforms in First
Nations Education

An International Dialogue on Indigenous
Education

A Research Model for Culturally Responsive
Education
1. Introduction

1.1 Purpose

The discussion paper was commissioned by the Education, Jurisdiction and Governance Department of the Assembly of First Nations to inform its action agenda in education for 2012 and going forward.

The search explored the importance and impact of culturally competent teachers utilizing First Nations cultural knowledge in the elementary and secondary school experience for creating optimal learning environments so that students can maximize their learning potential and move successfully through a life long learning curve.

The review of hundreds of documents evolved into a fact-finding mission, delving deeper than a literature review, culminating in the discussion paper specifically intended to answer these questions:

Do culturally and linguistically appropriate teaching and learning environments created by culturally competent teachers impact academic achievement levels of Indigenous students?

Do culturally responsive and competent teachers, students, counselors, administrators and policy makers create optimal learning conditions for achievement for Indigenous learners in the school setting and at a systems and governance level?

1.2 Background

The question of academic success factors, embedded in optimal learning environments for First Nations learners, leading to a love for lifelong learning has long been an issue of intense debate among First Nations and governments of the day. In 2010, the Auditor General of Canada noted that it would take 28 years to close the gap to bring First Nations graduation rates in line with those of the Canadian public. It was also noted that this gap is growing. This is a challenge to which First Nations and Governments must respond in a collaborative and innovative manner while at the same time, ensuring culturally responsive and competent teaching and learning.
Existing federal programming and policy touts literacy and numeracy as the panacea for First Nations success in the educational realm. First Nations take a broader perspective on student success to identify authentic education as including social and emotional competency factors, culturally based curriculum, civic engagement or service to one’s people, character education, community control of education, culturally responsive pedagogy and assessment and relationships between school and community as key factors to be embedded in cultural traditions, languages, cultural protocols, ceremonies, land based learning and the wisdom of Elders. Excellence in academic education is also a goal of First Nations along with meeting and exceeding national standards of literacy and numeracy.

School is not a culture free environment. Indigenous students must navigate their home culture and that of the classroom. The ability to function within both environments will help students embrace a positive relationship with both and home and school and promote better mental health and successful educational outcomes. Where the school finds itself in conflict with that of the home, there is a greater risk that the negative relationship can contribute to poor mental health, depression, violence, suicide or substance abuse.

Part of the challenge is the power relationship of the school personnel and the student. When differences in cultural values causes questions as to whose source of knowledge is important, then whose perspective will prevail? Will the First Nations perspective be relegated to second best or completely ignored in the classroom?

If school environments are not equitably reflective of First Nations identity and culture, then students may withdraw or resist the learning process and their motivation will be affected. Significant shifts in attitudes must occur through in-service training of teachers and in pre-service training for equity in First Nations education to be achieved. The teacher is both navigator and motivator in the First Nations elementary and secondary classroom and as such has tremendous potential to create a classroom environment of optimal learning conditions for learners.

The discussion paper compiles and critiques evidence and research on cultural competency for First Nations learners, including national and international models that have demonstrated success in measuring and improving outcomes for students by maximizing learner potential through cultural sensitivity in the curriculum, in teacher training, preparation of schools, school systems, Boards of Education and in policy and legislation. The international perspective includes New Zealand, Australia, and the United States.

Reference lists has been compiled of documents from about the 1960’s to the present. Separate reference lists are included for international efforts at culturally responsive education for the US, New Zealand and Australia, the impact of culturally responsive education on First Nations student achievement, culturally responsive research paradigms and cultural neuroscience.
The report will include analyses on principles or cultural standards, tools for effective teaching, promising practices and innovations, examples of culturally responsive classrooms/Schools/Boards of Education/School Divisions, cultural neuroscience on the subject of pedagogy and learning, culturally responsive research paradigms and a blueprint of recommendations for further research.

1.3 Historical and Political Context

The earliest Friendship/Alliance Treaties signed between First Nations and the Crown report a discussion between allies and affirm a relationship of mutual aid, friendship, political alliances and peace. Commitments made in the Treaties were solemn binding agreements made both orally in ceremonies forming a spiritual covenant and in written form for record keeping by the Crown.

Later the Treaties of the 1800’s and 1900’s became agreements that specified sharing lands and resources in exchange for certain benefits for the citizens of the First Nations to guarantee a comparable standard of life between the signatories. In these later Treaties, education was one of the elements of primacy as a Treaty entitlement and confirm First Nations jurisdiction over education for their peoples.

In 1972, a policy paper, long considered a milestone in education, paved the way for new approaches for the advancement of First Nations education. It was published by the National Indian Brotherhood, precursor to the Assembly of First Nations, and called “Indian Control of Indian Education.”

The paper became a manifesto for the challenging work ahead, inspired work for decades and was straightforward in its demands:

“We want education to give our children the knowledge to understand and be proud of themselves and the knowledge to understand the world around them.

We believe in education...as a preparation for total living...as a means of free choice of where to live and work...as a means of enabling us to participate fully in our own social, economic, political and education advancement.

The time has come for radical change in Indian education. Our aim is to make education relevant to the philosophy and needs of Indian people.” 1.

1. National Indian Brotherhood, Indian Control of Indian Education, Ottawa, 1972

The goals of this paper point to the jurisdiction of First Nations over education, for developing institutions under community control, for the protection and enhancement of First Nations languages, and for ensuring programming that builds the cognitive, emotional, spiritual and physical well being of the child within the
cultural framework of the Nation while being able to fully participate in their communities and in the broader Canadian society.

The *Canadian Constitution Act, 1982*, section 35 defined Aboriginal people as Indian, Métis or Inuit. Aboriginal and Treaty rights were recognized and affirmed in the Constitution Act. Subsequent to this in 2000, Marie Battiste and James Henderson argued that Aboriginal knowledge and heritage are Aboriginal rights protected under the Constitution and that Aboriginal people should be able to preserve their languages, customs, cultures and knowledges because they are part of an Aboriginal right. 2

The *Final Report of the Royal Commission on Aboriginal Peoples* (1996) notes: "We maintain...that recognition of the distinct place of Aboriginal nations in Canadian federation and accommodation of Aboriginal culture and identity should be regarded as a core responsibility of public institutions rather than as a special project to be undertaken after other obligations are met. Educational institutions have a pivotal role in transforming the relationship between Aboriginal peoples and Canadian society."

Education is a pillar of sovereignty. Standing in one’s homeland, viewing the horizon, knowing all life and responsibility emanates from the power of place encourages us to walk forward knowing our Ancestors have made the trail by enshrining our rights in the best way they knew of for their time. The way of life and traditional knowledge from the land and the Spirit empowers First Nations to guard the ancestral rights, duties and privileges for the present and future generations.


**Canada’s International Obligations: Paving The Way Forward**

Canada has international obligations to confirm First Nations rights to language, identity and to providing education systems consistent with the goal of self-determination.

Canada is a signatory to the *United Nations Convention of the Rights of the Child* (1990) and states that, “education of the child shall be directed to….the development of respect for the child’s parents, his or her own cultural identity, language and values....” The *Convention* clearly commits Canada to providing education that affirms First Nations cultural identities, languages and values. The Convention is an international human rights treaty for the protection of cultural rights of children among other rights. The signatories are bound by international law.
The *Convention on the Rights of the Child* in Article 29 (2) affirms that individuals and bodies have the liberty to establish and direct educational institutions with a view to the minimum standards of the government.

2. No part of the present article or article 28 shall be construed so as to interfere with the liberty of individuals and bodies to establish and direct educational institutions, subject always to the observance of the principle set forth in paragraph 1 of the present article and to the requirements that the education given in such institutions shall conform to such minimum standards as may be laid down by the State.

Recently, Canada endorsed the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) that calls on Nation States to take measures to protect the rights of Indigenous peoples “…to revitalize, use develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures, and to designate and retain their own names for communities, place and persons.” In order to accomplish this task, Nation States are called upon in the Declaration to work with First Nations (Indigenous Peoples) to “establish and control their education systems and institutions providing education in their own languages, in a manner appropriate to their cultural methods of teaching and learning.”

There are provisions in UNDRIP to affirm the Indigenous right to education and to jurisdiction over education:

Article 14 (1)  *This provision specifies that Indigenous peoples have the right to establish and control their education systems and institutions providing education in their own languages, in a manner appropriate to their cultural methods of teaching and learning.*

Article 14 (2)  *emphasizes that Indigenous individuals have the right to all levels and forms of education of the State without discrimination of any kind.*

Article 14 (3)  *determines that States shall, in conjunction with Indigenous peoples, take effective measures so that Indigenous individuals, particularly children, have access, when possible to an education in their own culture and language. It follows from the provision that Indigenous peoples living outside their communities also have the right to have access to an education in their own culture and language, wherever possible.*

The *United Nations Report of the Expert Mechanism on the Rights of Indigenous Peoples* recognized the necessity of having legal provisions in place to give recognition to education that is reflective of traditional ways of teaching and
learning through the establishment of Indigenous learning centres and organizations. 3

Section IV (56). **Examples of important existing education legislations include those recognizing the integration of Indigenous perspectives and languages into mainstream education, culturally appropriate curricula, mother tongue based bilingual and multilingual education, intercultural education and the effective participation of Indigenous peoples in designing education programmes. Policies of complementary education for Indigenous peoples permit the implementation of intercultural education in schools and colleges with the aim of moving towards multiculturalism and the recognition of the diversity of peoples.**


Financial support for infrastructure and programming is necessary to implement these initiatives.

Section IV (60). **Allocating targeted financial resources for the development of materials, testing proposed culturally appropriate curricula, teaching Indigenous languages, providing support for training and incentives for teachers in rural school and developing education programmes in cooperation with Indigenous peoples are also effective initiatives. An equally important consideration for communities located in isolated and sparsely populated areas is that the allocation of funding for infrastructure should not be made based on a school to population ratio.**

The *Report of the Expert Mechanism* also affirms the overarching goal of Indigenous education as follows:

Section II (6)  *Education of Indigenous children contributes to both individual and community development, as well as to participation in society in its broadest sense. Education enable Indigenous children to exercise and enjoy economic, social and cultural rights, and strengthens their ability to exercise civil rights in order to influence political policy and processes for improved protection of human rights. The implementation of Indigenous people's right to education is an essential means of achieving individual empowerment and self-determination. Education is also a means for the enjoyment, maintenance and respect of Indigenous cultures, languages, traditions and traditional knowledge.*

**The Canadian Landscape: The Momentum for Change**

A major shift within Canada is now underway as provincial and territorial governments begin to understand the financial travesty in maintaining the status quo in First Nations education and the resulting economic cost to governments of lost potential when the fastest growing segment of the Canadian population remains
vastly undereducated. University degree attainment rates are still holding at 4% for First Nations students on reserve compared to 23% for Canadians. The social and economic costs are devastating to consider in the next 20 years in the First Nations child and youth population sector if the governments continue to see failure rates for secondary school completion at just below 50% nationally. (Census, 2006)

There are key risk factors for low educational attainment for the First Nations population that include poverty, inadequate housing, poor opportunities for employment, family occupation and educational attainment, Internet connection, household income and parental partnership status.

But there are also strong protective factors that can modify or tip the balance of life outcomes for First Nations students if those factors are employed in an authentic educational experience for First Nations learners. First Nations students who embrace their heritage and languages to build strong self-concept exhibit resiliency and motivation that can overcome negative risk factors.

Those key external factors that can be influenced by systems and teachers include language learning with immersion options, culturally based curriculum, culturally safe learning environments with culturally competent teachers working within a system that acknowledges equity of Indigenous knowledge and traditions in its policies and operations from the school to the Board level.

The acknowledgement that long term processes of colonization have set the foundation for disempowerment of traditional Indigenous systems of knowledge, land based living, suppressed Indigenous languages, cultures and spiritual traditions is now becoming understood by Canadians. The stage has been set for poverty in our own homelands, a collective psyche damaged by generations of neglect, abuse and oppression leading to the highest levels of suicide, incarceration, unemployment, and family and community breakdown and separation through child welfare.

However, the turnaround for lifelong learning in First Nations contexts may have begun.

In 2008, the Council of Ministers of Education (CMEC) developed a Joint Declaration of Provincial and Territorial Ministers of Education called Learn Canada 2020 in which “Ministers of Education recognize the link between a well educated population and a socially progressive, sustainable society.”

In the declaration the Ministers committed to:

“...the objective of eliminate the gaps in academic achievement and graduation rates between Aboriginal and non-Aboriginal students across Canada.”
The CMEC engaged in a summit to “establish new relationship among leaders in Aboriginal education that respects jurisdiction and develops consensus on shared opportunities.” CMEC met in 2009 to raise the profile of Aboriginal education, to promote awareness of the need to eliminate gaps between Aboriginal and non-Aboriginal learners, to build partnerships with national and regional Aboriginal organizations, to identify areas of action, to engage the federal government on Aboriginal education to affect policy change, and to build intergovernmental networks for future dialogue and collaboration. Several themes emerged from the meeting for collective action:

- Strengthening Aboriginal languages and cultures
- Enhancing equity in education
- Increasing access retention and graduation to post-secondary levels
- Sharing responsibility and accountability
- Planning for seamless transitions for learners
- Reporting success, data collection
- Providing programs and services
- Engaging all partners

CMEC confirmed that Indigenous languages are the foundation for Indigenous cultures. Learners must be affirmed in their language and culture to be successful in their educational pursuits. The Summit identified the four pillars and the building blocks citing language and culture as the key for curriculum, resources, cultural content, diverse perspectives, instructional methods, programs and services.

In cooperation with the Assembly of First Nations, the Canadian Council on Learning began a series of three community dialogues in 2009 around the challenge of producing a First Nations Lifelong Learning Model. A model was produced that showed clearly:

*Lifelong learning for First Nations people is rooted in the individual’s relationships within the natural world and the world of people (self, family, Ancestors, clan, community, Nation and other Nations) and in their experiences of languages, traditions and ceremonies.*

*The model affirms the importance of integrating Western and Indigenous knowledge and approaches to learning. Thus the learning tree depicts the co-existence of Indigenous and Western learning within the root system, and their ultimate convergence within the trunk, the site where individual development and the process of lifelong learning is manifested.*

First Nations community discussions regarding the model affirmed the importance of land based learning with Elders occupying a role of supreme importance in sharing traditional knowledge in the respective languages of the region. The community members cited language usage, ceremonies, songs, cultural knowledge
and wisdom, sacred sites, stories, kinship and clan systems, naming ceremonies and gathering medicines as important knowledge for children and the significance of this wisdom in the classroom. 5


In 2010, the Association of Canadian Deans of Education formulated a historic Accord on Indigenous Education that affirmed their commitment to work with the signatories on the Accord’s vision, principles, and goals in their education work and research initiatives. The signatories commit to working collaboratively to formulate the educational goals and values of Indigenous communities. Progress, gaps and barriers will be shared among the signatories to promote a learning environment among the members.

The Accord has as its manifesto that Indigenous identities, cultures, languages values, ways of knowing and knowledge systems will flourish in all Canadian learning settings. The Accord is based on social justice for Indigenous peoples, reflects a respectful consultative process knowledge holder, promotes multiple partnerships among educational and Indigenous communities and values diversity of Indigenous knowledge’s and ways of knowing and learning. The work includes:

- Creating respectful and welcoming learning environments
- Respectful and inclusive curricula
- Culturally responsive pedagogies
- Mechanisms for valuing and promoting Indigeneity in education
- Culturally responsive assessment
- Affirming and revitalizing Indigenous languages
- Indigenous education leadership
- Non-Indigenous learners and Indigeneity
- Culturally respectful Indigenous research

By 2010, buoyed by national support and an increasing commitment by the Leadership of First Nations to engage in the renewal of education, the Assembly of First Nations updated the Indian Control of Indian Education paper of 1972 and renewed the call for action in First Nations Control of First Nations Education.

“Federal, provincial and territorial governments must work with First Nations locally and regionally, to develop and implement strategic plans to ensure that early learning initiatives promote school readiness, the holistic development of the individual and high quality culturally relevant programs and services.”
“First Nations languages, knowledge and diversity are an important national heritage that must be protected, supported and preserved. Recognition and respect is vital for the success of comprehensive First Nations learning strategies that will lead to meaningful and improved learner outcomes.”

“Federal, provincial, territorial and First Nations governments must ensure that every First Nations child regardless of residency, has access to integrated early learning programs and services including, but not limited to, language nests, immersion programs, Head Start programs, daycare, pre-kindergarten and preschool. Actualization of this policy requires that First Nations communities be provided with the supports and resources necessary to run these programs.” 6

In April, 2011 National Chief, Shawn A-in-chut Atleo spoke to the United Way and said, “We cannot abandon another generation to poverty and despair. Failing to invest in our young peoples will result in dramatically increased social costs and lost potential. On the other hand, by closing the education and labor market outcomes gaps in one generation, there is the potential to generate $400 billion in additional output and save $115 billion in government expenditures. And when we look at just one individual, the benefit is clear. When a First Nations young person graduates with a University degree, they triple their earning potential.” 7

The positioning and timing of First Nations education as a national issue of action among First Nations and nationally, among learning associations and among federal, provincial and territorial Ministers has catapulted Indigenous education into the vanguard of change influencing innovations in economic development, social services, and health care systems.

In December of 2011, The Standing Senate Committee on Aboriginal Peoples of the Government of Canada produced a landmark report titled, “Reforming First Nations Education: From Crisis To Hope” with four major recommendations to build a strong infrastructure to support an authentic First Nations controlled system of elementary and secondary education.

The recommendations issued a call for a First Nations Education Act as a legislative foundation for First Nations education beyond the general sections of the Indian Act; the establishment of second and third level services for First Nations education; the necessity of federal funding for First Nations Education Authorities for providing services in First Nations communities with a specific focus on language and cultural revitalization; and recommending a jointly held Task Force of DIAND and AFN be established to oversee the work of a Canada-First Nations Action Plan and report annually for the first five years.


The report recommended a new legislative foundation and systems wide changes for institutional support to First Nations education that were so desperately needed. For the first time, the secondary and tertiary levels of support enjoyed by Canadians in public systems of education through Boards of Education and Ministries of Education were being recognized not only as missing from First Nations education systems but critical to their development. A Joint Action Plan and a Task Force to oversee its work was recommended to monitor the changes and be accountable to the Canadian public and to First Nations for the innovations underway.

Their recommendations are as follows:

Recommendation 1

That the Government of Canada, in consultation with First Nations and First Nations educational authorities, develop a First Nations Education Act; that this Act explicitly recognize the authority of First Nations for on-reserve elementary and secondary education; and that it enable the establishment of First Nations controlled second-and-third level education structures; and that the application of this Act to individual First Nations communities be optional, and provide for the repeal of the education sections of the Indian Act for those First Nations that opt into the new Act.

Recommendation 2

That the proposed First Nations Education Act provide statutory authority to the Minister of Aboriginal Affairs and Northern Development Canada to make payments from the Consolidated Revenue Fund to First Nations educational authorities, with the objective of providing educational services on reserves; that the methodology for establishing the amount of these payments be enshrined in regulations authorized under the Act, and developed in consultation with First Nations; that these regulations would consider key cost drivers such as demographics and remoteness; and that the formula for establishing payments include, among other things, First Nations language preservation and revitalization programs.

Recommendation 3

That the Department of Aboriginal Affairs and Northern Development Canada, in collaboration with First Nations organizations and the Assembly of First Nations, take immediate steps to develop a Canada-First Nations Action Plan for education reform; and that the joint action plan include a process to ensure that First Nations are able to opt into a First Nations Education Act within agreed-upon timelines.
Recommendation 4

That a task force, jointly appointed by the Minister of Aboriginal Affairs and Northern Development Canada and the Assembly of First Nations, be established to oversee and monitor progress related to First Nations educational reform; and that the task force report annually, for the next five years, to the Minister of Aboriginal Affairs and Northern Development Canada and to the National Chief of the Assembly of First Nations.

National attention of First Nations governments and federal, provincial and territorial governments has been focused on First Nations education for the past few years in an effort to deal with the barriers to student academic performance and explore ways to close the 28 yr. gap between First Nations student achievement and the academic performance of Canadian students.

Current Initiatives:

In the summer of 2011, the collaborative work of the Assembly of First Nations and the Department of Indian Affairs established a National Panel on First Nation Elementary and Secondary Education for Students on Reserve.

The report of the National Panel titled, “Nurturing the Learning Spirit of First Nations Students” was released on Feb. 8, 2012 documenting the findings of the Panel and making 5 major recommendations for extensive reform of First Nations education in Canada.

The Panel members visited 25 First Nations schools, 30 First Nations communities and held 8 roundtable sessions. The Panel met hundreds of people and received multiple submissions on their web site. The report states, “First Nations students are not failing. Rather, we are failing students through the impact of legislative provisions that are more than one hundred years old and linked to a period that we now accept as deeply harmful and destructive....the residential school era.” (vi)

The report asserts, “We have a duty to do better and an obligation to protect and support the rights of First Nations children to a good education that builds a strong First Nations identity, language and culture and ensures that these students are learning and achieving at the same level as non-First Nations students.” (iv)

Three principles guide the reform process:

- First Nation Education Reform must be based on the child’s right to their culture, language and identity, and to a quality education that is appropriate to their needs. The First Nation child must always be at the center of this effort through a “child first” commitment that is embraced by all.
• First Nation Education Reform must be undertaken in the spirit of reconciliation and collaboration among First Nations, the Government of Canada and provincial and territorial governments.

• First Nations Education Reform must feature a commitment to mutual accountability for roles and responsibilities as well as financial inputs and education outcomes.

Five recommendations are offered:

   The Act includes an implementation plan and schedule. It also includes treaty and self-governing rights, special powers and duties, performance measures, curriculum, accountability for assessment and testing, outcomes and policy and the accompanying regulations. The Act should specify, “...the right to cultural heritage and identity.” (p.32)

2. Create a National Commission for First Nations education to support education reform and improvement.
   This Commission would replace DIAND in education matters except for the funding mandate of the Department. It is an independent body with its own Board of Directors.
   In addition, the Panel recommended the development of a First Nations Education Centre of Excellence to provide research on First Nations languages, culture and identity, reform curriculum and assist with training of teachers and Principals.

3. Facilitate and support the creation of a First Nation education system through the development of regional First Nation Education Organizations (FNEO) to provide support and services for First Nations schools and First Nations Students.

4. Ensure adequate funding to support a First Nation education system that meets the needs of First Nation learners, First Nation communities and Canada as a whole.

5. Establish an accountability and reporting framework to assess improvement in First Nation education. (viii and ix)

Along with the recommendations of the Senate Report, we now have a strong series of recommendations for legislative change to bring forward a First Nations Education Act, new regulations and policies, accountability measures, focused reform on schools, programs, teacher training, curriculum, languages, culture and identity among others. The framework to collaborate to make the necessary changes has been provided through National Commission and a Task Force to
oversee the reforms. Time schedules have been offered to guide the process. A new Centre of Excellence has been recommended to guard culture, language and identity of First Nations learners. Regional first Nations Education Authorities have been suggested to offer second level services to First Nations schools. Funding considerations are part of the Plan.

Only a truly respectful process can now guide the elementary and secondary reform movement in First Nations education where collaboration makes the best use of the minds brought to bear on the pressing issues and innovations needed to ensure all First Nations children have equitable educational opportunities in Canada in concert with their rights, cultures, languages and community responsibilities and to be consistent with Section 15 of the Charter.

2. Methods

2.1 The Review Process

Following the intent of the two review questions, an intensive internet search was conducted in the field of education and the related field of health. The references used in this report came primarily from the Education Resources Information Centre (ERIC), the Australian Education Index (AEI) and health (Medline) for a broad section of literature across disciplines and countries.


The prominent sources included ERIC, ProQuest, CREDE (Centre for Research on Education, Diversity and Excellence), digital dissertations, psychological abstracts, social science abstracts, social index and reports on education for language and culture.

The search widened to include the time period of 1990 to the present with a preference for those documents published since 2000 to cover a specified time frame but not be outdated. Relevancy ensured that the articles were related to the broad aspects of the review questions or had applicability to the knowledge base to offer innovations or to provide historical context. The articles had to be written in English. Some historical articles were dated to the 1920’s for a long-range view of the legislative changes in Indigenous education.

Universities were contacted in the Colleges of Education, Indigenous Studies, Indigenous Education Programs and Early Learning. The following institutions were contacted: Ontario Institute for Studies in Education, University of Manitoba,
University of Toronto, University of Victoria, University of Guelph, York University, University of Saskatchewan, Mothercraft College, University of Western Ontario, University of Arizona, University of New Mexico, and Charles Sturt University.

2.2 Document Analysis

The documents were reviewed for the discussion paper according to the questions developed.

The text in each reference review was noted to facilitate the retrieval of themes arising according to the review questions. This was done to ensure that the answers to the review questions were grounded in the literature and that cross-referencing is possible across a broad range of contexts.

The availability of qualitative literature describing culturally responsive education is now becoming more plentiful but the problem remains with the lack of availability of quantitative research on the effect of culturally based education on student achievement. Experimental models for this type of research are also few in numbers.

A model is needed that will coordinate the research agenda using common outcome measures, common interventions and similar high quality programs for study purposes.

Longitudinal studies, although expensive and difficult to manage are very much needed to yield the data that will enable culturally responsive interventions to be identified in an evidence base for replication across First Nations education systems. Those factors that are barriers to First Nations student achievement will also be acknowledged along with gaps in educational services that impact student performance.

2.3 Limitations

The socio-emotional well-being of students is a key factor in their educational success. Other social and structural factors such as racism or bias in educational leadership have serious impacts in determining not only academic achievement levels but also determine a healthy self-concept and fulfilled futures for First Nations students.

The diversity of educational achievement in diverse geographic regions must be explored. This review examined national or provincial/territorial trends only.

Further work needs to be initiated to identify the economic factors that impact the educational progress and success of Indigenous students and the primary effect of
poverty on educational achievement levels. Indeed, further research must be done to target those determinants that show clearly what is working for First Nations students across a range of school environments in provincial schools and First Nations operated schools. Research also needs to identify those destructive factors that are systems based and continue to negatively impact Indigenous students’ academic performance.

**Economic Outcomes**

Educational attainment levels are key to improved results in the labor market. Social issues such as racism, poverty, poor health, isolation, and absence of employment opportunities are institutionalized barriers to the success of First Nations students. There is a mismatch between supply of work opportunities and the isolated regions where many First Nations are located. Racism in the job market is still a reality. Getting the first job is always the most challenging part of employment not necessarily keeping the job. A job market that has been impacted by a continued recession both nationally and globally since 2008 has impacted job availability even in unskilled occupations.

Social and economic factors combined with educational challenges form a web of barriers to Indigenous completion of secondary school and transition to post-secondary level studies. The inappropriate forms of teaching or pedagogy, the culturally exclusive curriculum and the ineffective assessment procedures and tests all contribute to a negative impact on the Indigenous student. Disadvantaged students are the outcome of government policies of neglect.

More studies need to be conducted on the systemic barriers to clearly identify the economic gaps and ceilings faced by Indigenous peoples. At the end of 2011, a report from Stanford University showed that with a rising “income achievement gap a family’s economic situation is a bigger determinative force in a child’s academic performance than any other demographic factor. For poor kids, that means the intensifying hardships of poverty are now creating massive obstacles to academic progress.” The US Department of Education reported that, “Many high poverty schools receive less than their fair share of state and local funding.” The scheme “leaves students in high poverty schools with fewer resources than schools attended by their wealthier peers.” Less funding is available to recruit teachers, upgrade facilities, renew curricula or reduce class sizes. “Schools in destitute areas naturally require more resources than those in rich ones so as to help impoverished kids overcome comparatively steep odds.”

Substantive equity has important implications for the costing of First Nations education and the pressing need for economic studies completed regionally not provincially to accommodate real costs per geographic region in order to understand the true monetary investment needed to support and enrich education.
New formulas closely matched to those measures used by the provinces and territories should be developed to properly fund First Nations education. Capital plans need to be in place over a 10 yr. period with full assessments of the current value of First Nations schools, maintenance and repairs and a view of replacement costs when the time comes. The concept of needs based equity should be explored with governments at all levels.

The reality is that a greater investment in First Nations education must be made to fully acknowledge the historical deficit so that First Nations may attain equity with Canadians.

**Social Outcomes**

In Canada, colonization has produced an environment of social exclusion for Indigenous peoples. Colonial marginalization and devaluation has led to low socio-economic status, racism and systemic government underfunding of services on many levels and has left the Indigenous child in a vulnerable position. Social exclusion leads to trauma and builds on the platform of historical and generational trauma brought by military intervention, genocide, biological warfare, displacement or removal from traditional homelands/lifestyles and legalized oppression.

Indigenous peoples in Canada remain poor in our own homelands is matter of general agreement. First Nations remain educationally disadvantaged and as this fact contributes directly to economic disadvantage since non-completion of secondary school only further entrenches this disadvantage.

It is a myth that education is an open and free opportunity for all Canadians, that participation in education is based on one’s natural capacity and motivation, or that mainstream curriculum and assessment techniques are fair to all students. The life of the student upon entering school is a myriad of social factors that must be examined to determine the key protective factors for resiliency and the risk factors that impact achievement.


The educational attainment level of young mothers has an important impact on maternal health and infant well-being. With Indigenous mothers having children at a young age and then leaving school, there is a significant portion of the First Nations population that is now left out of meaningful economic participation. More studies need to be done to support maternal infant health and the return to schooling for young mothers. Maternal infant health and high quality, culturally responsive early learning programs for First Nations children are key factors in building a strong, seamless First Nations education system. Some ideas include offering home based learning resources to new mothers, age appropriate books and
resources for children 0-3 years, resources for child parent bonding, education for parents on healthy lifestyle choices for infants, and early literacy. When families and young mothers have the appropriate information, they can make informed decisions.

Further studies are needed that assess the impacts of trans-generational trauma on the developing fetus, the impact of stress or neglect on the infant and the intervention required to shift the potential negative effects of poverty and stress on the developing child’s ability to learn and succeed in school.

Studies show that high quality early childhood education supported by a home environment valuing learning lays the foundation for academic success and personal well-being. Positive learning experiences in early life lead to positive outcomes. Research shows that children who attend early learning programs do better in elementary and secondary school than children who do not. When children are provided with stimulating and empathetic surroundings, they develop a better mastery of language, interpersonal skills, cognition and self-regulation. (Schweinhart and Wikart, 2000; Yang, 2006; Academy of Pediatrics, 2005)

This is the platform on which children of 2040 will stand as creative, dynamic, contributing adults and much attention must be paid to creating the most integrated and comprehensive models at this stage to lead into a culturally based education system for K-12.

Education is an opportunity for social mobility, empowerment, self-actualization and community service in Nation building for Self Government. Education is closely tied to Self Government planning processes. The measure of a fully functioning government is the educational attainment level of its citizens and their capacity to contribute to the local economy and participate in community organizational growth.

INTERNATIONAL EFFORTS FOR CULTURALLY RESPONSIVE EDUCATION

UNITED STATES

United States: Legislative and Policy Directives

In the US, the first references to the importance of inclusion of language and culture into the curriculum was evident in the Merriam Report of 1928 (Prucha, 2000). John Collier, Indian Affairs Commissioner in 1933 supported bilingual education for Native American students and initiated a teacher re-training program to enable teachers to become more knowledgeable about cultures. He closed some boarding
schools (residential schools) and replaced them with day schools. Collier was part of the team that initiated the development of the Johnson O'Malley Act of 1934, later amended in 1975 and called the Indian Self Determination and Educational Assistance Act.

A number of Tribal schools started in the 1960’s that predated the more progressive legislation and policy work of the 1970’s. These schools already represented the beginnings of culturally responsive education before the term was coined and before funds were allocated to the effort. Rough Rock Demonstration School began in 1966, Klawock Public School started in 1968 and Bethel School District, a BIA school began in 1968.

A report of the US Senate, “Indian Education: A National Tragedy-A National Challenge (1969) revealed decades of programs and policy initiatives that were destructive forces in tribal classrooms. A national conference on Indian education was held in Minnesota in 1969 and called for national leadership in Indian education to improve the quality of education, increase the number of Indian teachers, strengthen culture and language programming, support curricular changes and to provide a forum for discourse on important innovations and educational needs of Indigenous students.

A subsequent national conference in 1970 saw the formation of the National Indian Education Association (NIEA) for national leadership in Indian education and to provide a forum for discussion on federal and state policies contributing to the improvement of learning environments for Native American students. That same year, the Havigurst report called the “National Study of American Indian Education” provided research on the academic performance of Indian and Alaskan students analyzing learning environments, their strengths and weaknesses, lack of curriculum incorporating culture and language, lack of Native teachers and government policies that had failed to serve the educational needs of American Indian students.

The NIEA served in a pivotal role in the early 1970’s and took its place as a major player in the development of the Indian Education Act of 1972. The Act was instrumental in bringing change to Indian education in the areas of funding for schools to develop culturally based curriculum, support for increasing the numbers of qualified Indian teachers, opportunities to develop more language and cultural programs, experimentation of innovations for pilot programs and the requirement for parental involvement in education. By 1975, the US government passed the Indian Self Determination and Education Assistance Act recognizing the transfer of control of education to federally recognized Tribal Governments.

In the 1980’s scholarship around the concept of culturally responsive education emerged to take its place beside multicultural education as diversity grew in the US classrooms with the arrival of students from many racially and ethnically different backgrounds.
The Native American Languages Act (1990), the Indian Nations At Risk Task Force Report (1991), the White House Conference on Indian Education (1992) and the Executive Order 13096 of President Clinton in 1998 on Indian education supported the quest to place culture and language as a foundational piece for the education of Indigenous students in the US.

The Executive Order outlined goals of evaluating “promising practices used with” Indigenous students, evaluating “the role of native language and culture in the development of education strategies”, assisting “tribal governments in meeting the unique educational needs of their children, including the need to preserve, revitalize, and use native languages and cultural traditions.” The Order included the recognition of the “special, historic responsibility for the education of American Indian and Alaska Native students,” a commitment to “improving the academic performance and reducing the dropout rate” of Indigenous students and a nationwide effort among tribal leaders and Indian education scholars to develop a “research agenda” guided by the goals of self-determination and the perpetuation of tribal cultures and languages. (American Indian and Alaska Native Education, 1998)

The emerging belief that culturally based education including language learning is integral to the spiritual, mental, emotional and physical well-being of the American Indian child now had been established. The Bilingual Education Act of 1994 (currently Title VII of No Child Left Behind) supported culture based education. Indigenous Nations in the US began to connect the importance of a well-educated citizenry to the economic and social renewal of their communities.

However, an Executive Order 13336 signed into law in April, 2004 focused attention on Indigenous students meeting the standards set out in No Child Left Behind 2001. The fear that Indigenous schools were moving away from providing a culturally responsive education in the face of meeting national standards became a very real fear of Indigenous Nations in the US. The mainstream standards may not be the goals of Indigenous Nations. Despite the legislation and policy standards for Indigenous education in the US, the implementation of culture and language in the public schools is still at risk due to compliance by teachers or administrators especially in state schools and is of course, impacted by funding issues. Indian Nations are looking to self-determination over education as a means of guarding language and cultural traditions in their schools on reservation homelands.

BEST PRACTICES IN CULTURALLY RESPONSIVE EDUCATION

There do not appear to be any rigorous evaluation studies of culturally responsive education and its impact on Indigenous student achievement in Canada or the United States of scale compared to those in New Zealand.
Brayboy and Castagno (2009) and Castagno and Brayboy (2008) have conducted an extensive literature review to look at how culturally responsive education is faring within the standardized testing education framework of No Child Left Behind. They have determined that more Indigenous children are being left behind as their culture and language is less visible in the school program.

In their studies in 2008 and 2009, Castagno and Brayboy discuss case studies of culturally responsive education, although rigorous evaluation is missing. Qualitative information on the effects of culturally responsive schooling is showing positive effects on students from the many programs offered. Castagno and Brayboy conclude that positive learning outcomes are achieved when culturally responsive education is offered to Indigenous students. They recommend that research be an integral part of implementing culturally responsive education to understand the complex nature of interplay among curriculum, pedagogy, language and culture to target those variables that impact academic achievement for Indigenous students.

Castagno and Brayboy have offered elements of education they consider to be critical to Indigenous student success:

- A focus on sovereignty expressed through local control of education
- Recognition of the legitimacy of local norms, values and epistemologies, and their place in education
- Culturally contextualized curriculum and pedagogy
- Intensive preparation of all teachers in pre-service and in-service

Beaulieu, a Chippewa scholar, offers the lens of community based education and local control for consideration as a key factor in culturally responsive education:

- Establish local standards for the education of Indigenous students
- Design curricular approaches consistent with locally defined education objectives
- Accreditation standards that allow evaluation of achievements within the context of accountability to the local community and its Elders
- Local research that informs community members and school educators (Beaulieu, 2006)

Crawford (2007) confirms the thesis of Beaulieu that Indigenous families and communities should be involved in deciding on curriculum and accountability and that state governments should hold schools accountable for providing quality instruction.

Crawford speaks about “authentic assessment” based on local needs:
• Accurate, reliable and valid: schools should adopt multiple measures and alternative assessments using locally developed indicators and student portfolios
• Reasonable: schools need to be judged on academic growth over time, not on arbitrary proficiency measures, and over sufficient long periods to achieve longer-term goals
• Equitable: accountability should be tailored to the unique needs and characteristics of diverse learners
• Balanced: accountability should include both “outputs” (test scores) and “inputs” (curriculum content and process)
• Flexible: pedagogical judgments should be left to educators in consultation with parents, and based on local knowledge and needs
• Constructive: there should be an emphasis on capacity building to better serve the needs of students and parents
• Decentralized: accountability should be locally designed, incorporating qualitative and quantitative measures (Crawford, 2007)
• Culturally based: the revitalization of local languages and cultures should be paramount via the systemic teaching and assessment of Indigenous languages and cultures in the schools (McCarty et al., 2006)

McCarty (2008, 2009) offers a review of research on how accountability might look within the context of culturally responsive education given the standardized tests of English authorized by the NCLB Act of 2001. She examined research on the impact of accountability policies on Indigenous learners in the US by looking at quantitative data and concluded, “...there is no consistent evidence that high stakes accountability policies improve academic achievement or ameliorate education disparities. Indeed, a large body of evidence indicates that the achievement gap is widening due to unchecked economic disparities and the adoption of strategies designed to avoid high stakes penalties.” (McCarty, 2009, p. 22)

McCarty’s (2009) review offered three case studies where curriculum was grounded in local culture, identity and language and had a goal of academic excellence as measured by local and state accountability measures.

1. Puente de Hozho School, (Arizona)

This is an extraordinary public elementary school offering immersion in two languages of Spanish and Dine (Navajo) languages. The vision of the school is to build the bicultural/biliterate/bilingual student of the future with cultural competencies to move freely and easily within many cultural paradigms. Parents are heavily involved in the school program and its activities.

The Dine language is used as the language of daily instruction for Navajo students with English slowly introduced reaching an equal balance of instruction time in the middle years of Grades 4-8. Navajo students in this school exceed the performance
levels of their peers in monolingual English programs in the state on standardized tests.

2. Nawahiokalani opu‘u Laboratory School (Hawaii)

This is a Hawaiian immersion school offering a seamless program from early learning to secondary school. The goal is to offer academic programs of excellence in the context of Hawaiian language and culture.

Evaluations of student achievement reveal over time that these students surpass their peers in non-immersion schools on standardized tests in English. McCarty states that school administration attribute the success of the students to, “...an academically challenging curriculum that applies knowledge to daily life and is rooted in Hawaiian identity and culture.” (McCarty, 2009, p. 23)

3. Tsehootsooi Dine Bi olt A Navajo Nation (Arizona)

TDB School is a K-8 school located on the Navajo Nation and features all instruction in Dine (Navajo) in the early grades with English introduced in Grade 2 and increased to Grade 6 when the program becomes bilingual in instruction and daily usage.

The longitudinal data confirms that Navajo students outdistance their peers in English only classrooms on state testing for mathematics, writing and English literacy. McCarty states that students achieve a deep grounding in Navajo language, values and cultural knowledge without cost to their English language development and academic achievement. (McCarty, 2009) She also adds that TDB curriculum incorporates both, “…tribal standards for Navajo language and culture and content-area standards required by the state.” (McCarty, 2009, p. 24)

1. Creating Sacred Places for Children

The National Indian School Board Association developed a school reform movement founded on the research emanating from the effective schools concept and at the same time utilizing cultural responsive education. The pedagogy and content is relevant to Native American students, linked to National and State Standards and is allied with research based pedagogy. Cultural standards are part of the school management, school value system, school board, administration and classroom activities. Regular evaluation of the fidelity of how the cultural values are used in the school and community is a feature of this program. Creating Sacred Places for Children is part of 14 school sites in 6 states. In an article in Indian Today (2006) Reyhner reported that students in this program in Grades 3-5 from 2001-2003 “showed significantly greater gains in reading than students in other BIA schools.” The effective schools research has seven features: strong instructional leadership, a clear mission, a climate of high expectations for success, a safe environment, frequent monitoring of student success, positive home school relations and learning
time on task. The BIA added three more features to the CSPC curriculum: cultural relevance, a challenging curriculum and appropriate teaching style and shared governance.

This is a strong program initiative that might be considered in future research for culturally responsive education.

AUSTRALIA

Australia: Legislative and Policy Directives

The Commonwealth began to legislate over Indigenous issues following the national Referendum in 1967. From the 1970’s onward, the Commonwealth engaged in policy reviews with local states and territories through Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) to address Indigenous disadvantage in a coordinated manner. The policies of today are similar to those of 40 years ago.

The National Aboriginal and Torres Strait Islander Education Policy of 1989 remains the national policy on Indigenous education in the country. The four pillars of the policy are:

- involving Aboriginal and Torres Strait Islander people in educational decision making
- equality of access to educational services
- equity of educational participation
- achieving equitable and appropriate educational outcomes

Long term goals (21) support the pillars and are now associated with performance targets and reporting mechanisms. (IESIP, Indigenous Education Strategic Initiatives Program and NIELNS, National Indigenous English Literacy and Numeracy Strategy).

The IESIP along with Indigenous Education Direct Assistance are the two primary programs in Indigenous education designed to improve core competencies. Educational organizations receive funding under this program in five priority areas:

- improving literacy
- improving numeracy
- improving education outcomes for Indigenous students
- increasing Indigenous enrolments
- increasing Indigenous presence, involvement and influence in education (Commonwealth of Australia, 2002)
NIELNS was launched in 2000 to ensure that Aboriginal students reach literacy and numeracy levels comparable to other Australians. In this program, key issues were identified:

- achieving attendance
- overcoming hearing, health and nutrition problems
- getting good teachers
- using the best teaching methods
- measuring success, achieving accountability (DEST, 2000)

Each education provider has an agreement with the Commonwealth to achieve these priorities. This is the prevailing government framework and goals for Indigenous education in Australia today.

In 1999, the *Adelaide Declaration on National Goals for Schools in the 21st Century* was brought forward with an emphasis on lifelong learning. The goals reflect the building of social and emotional skills, communication skills, problem solving and the cultural transmission of behaviors and values.

The National Goals also state the social justice is dependent on all students learning about Aboriginal cultures.

MCEETYA (2000) established the *National Statement of Principles and Standards for More Culturally Inclusive Schooling in the 21st Century* as a framework for action. It was intended by all levels of government state wide, in the Territories and nationally that the principles and standards would form part of all policies and contribute to more culturally responsive education. MCEETYA (2000) also developed *A Model of More Culturally Inclusive and Educationally Effective Schools* in a companion framework noting the importance of the relationship between schools, community and classroom.

In March of 2000, the State, Territory and Commonwealth Ministers of Education met to discuss the achievement of educational equality for Indigenous peoples in Australia as a matter of urgent national priority. The Ministers act as a Council on Education, Employment, Training and Youth Affairs. The Ministers agreed to act in conjunction with schools to meet the challenge.

The State, Territory and Commonwealth Ministers of Education committed to principles and standards for more culturally inclusive education in the 21st century and as a framework for action.
The National Statement of Principles and Standards for More Culturally Inclusive Schooling in the 21st Century was developed to describe the democratic right to education. The Statement is supported by a series of earlier policy statements such as the Hobart Declaration on Schooling (1989), the National Aboriginal and Torres Strait Islander Education Policy (1989), the National Strategy for the Education of Aboriginal and Torres Strait Islander Peoples (1996-2002) and the Adelaide Declaration on National Goals for Schooling in the 21st century. (1999).

The Principles outline commitments to:

- A welcoming climate that values Indigenous students and supports them to achieve equitable outcomes
- Establishing effective teaching/learning relationships between the Indigenous learner and the teacher
- Enrolling all Indigenous students who will be actively engaged
- Being fluent in Standard English and inclusive of the home language
- Increasing the numbers of Indigenous peoples across the staff and the involvement of community members in the school
- Providing a curriculum free from discrimination, supporting all students to learn about the value of Aboriginal cultures
- Encourage and support parental involvement

The Standards speak to:

- Access to the same level of services to achieve equitable educational outcomes
- Address teaching practice for the hearing impaired
- Schools are at the same standard for all children
- Schools are locally accessible
- Provide high quality education as a pathway to further schooling or employment
- Access to specialists for disabilities
- All education staff have the same level of qualifications no matter where they work or whom they serve
- All educators participate in cross cultural pedagogy
- All committees have Aboriginal and Torres Strait Islander membership
- Governments ensure that high quality education is provided in prisons, detention centers, or juvenile justice systems
- Closing the gap in attendance rates, literacy and numeracy, participation rates

In 2008, the Council of Australian Governments (COAG) also agreed to Service Delivery Principles for Indigenous Australians to take a transparent approach to
coordinating services to address Indigenous disadvantage in a legacy of piecemeal programming. In partnership with Indigenous communities, governments established Overarching Bilateral Indigenous Plans to coordinate policies and services in their jurisdictions.

The “National Integrated Strategy for Closing the Gap in Indigenous Disadvantage” is a part of the National Indigenous Reform Agreement for the Government of Australia. In 2008, the Council of Australian Governments agreed to closing the gap in Indigenous disadvantage by focusing on the strategic building blocks of education, life expectancy, early learning, economy, safe communities, housing, governance and health. Increased funding was made available along with plans for future action as the goals were achieved. COAG committed $4.6 billion in Indigenous specific funding over 10 years to drive the reforms. Strong relationships were built among not for profits and corporations to make the efforts national in scope recognizing the need for alliances for multi-agency effort.

The Strategy is a plan with targets to reduce Indigenous disadvantage and action steps that include planning around early childhood education, schooling, health, economy, housing and safe communities. The emphasis is on education as the principal context for change.

In this regard, six targets have been agreed upon by the Prime Minister, Premiers and Chief Ministers through the Council of Australian Governments (COAG):

- Close the life expectancy gap within a generation
- Halve the gap in mortality rates for Indigenous children under 5 within a decade
- Ensure all Indigenous four year olds in remote communities have access to early childhood education within five years (2013)
- Halve the gap for Indigenous students in reading, writing and numeracy within a decade (2018)
- At least halve the gap in Indigenous Year 12 attainment or equivalent attainment by 2020 and,
- Halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade (2018)

The Strategy acknowledges the importance of Indigenous culture and the need for meaningful engagement of Indigenous Australians for positive working relationships. Embedded in the Strategy are targets performance indicators and accountability measures and reporting structures for transparency. However, the nature of the strategy as a government initiative still appears as a power imbalance with Indigenous Australians playing a secondary role in initiating meaningful change.
The Strategy’s targets, building blocks and outputs specifically regarding early learning and education are those listed below for reference purposes. They reveal the emphasis on early learning and education as primary pillars for investment:

1. **Close Life Expectancy Gap Within a Generation**

   Early Learning: Increase antenatal care services for young Indigenous women, increase provision of sexual and reproductive health services for Indigenous teens, increase provision of maternal and child health services, establish 35 Children and Family Centers in urban, remote and regional areas with high Indigenous populations and high disadvantage, provision of early learning, child care and parent and family support services to Indigenous families or through each of the Child and Family Centers

   Schooling: Provide school meals and nutrition programs

2. **Halve the Gap in Mortality Rates for Indigenous Children Under 5 Within a Decade.**

   Early Learning: as above

   Schooling: Establish 35 Children and Family Centers in urban, remote and regional areas with high Indigenous populations, provision of early learning, child care and family support services to Indigenous families at or through each of the Children and Family Centers

3. **All Four Year Olds, Including in Remote Indigenous Communities, Have Access to Early Childhood Education Within 5 Years.**

   Early Learning: Children have universal access to preschool program for 15 hours per week, 40 weeks per year, Universal access to a preschool program is delivered across a range of settings at a cost which is not a barrier to access, Indigenous children including those in remote Indigenous communities, enrolled in and attending a preschool program, fee waivers for childcare qualifications, improve the number and qualifications of workforce including Indigenous, establish 35 Child and Family Centers in urban, remote and regional areas with high Indigenous populations and high disadvantage, provision of early learning, child care and parent and family support services to Indigenous families at or through each of the Children and Family Centers

   Schooling: School/Health/Family Hub Centers for family support

4. **Halve the Gap for Indigenous Students in Reading, Writing and Numeracy Within a Decade.**
Early Learning—as above

Schooling—National Education Agreement—Support for parents/caregivers to actively participate in children’s education, Improving Teacher Quality through professional development in quality and culturally appropriate teaching methods, Literacy and Numeracy through early intervention and specialist teachers for low achievers, Low SES School Communities through holistic services offered through school hubs, and Preventive Health through school meals programs

5. **At Least Halve the Gap in Year 12 Attainment or Equivalent Attainment Rates by 2020.**

Schooling—National Education Agreement to improve school retention and completion rates from Year 9 up

6. **Halve the Gap In Employment Outcomes Between Indigenous and Non-Indigenous Australians Within a Decade.**

Early Learning—establish a minimum of 35 Children and Family Centers in urban, remote and regional areas with high Indigenous populations, provision of early learning, child care and parent and family support services to Indigenous families at or through each of the Children and Family Centers

Schooling—Low SES School Communities, provision of innovative and tailored learning opportunities and external partnerships with parents, other schools, businesses and communities (National Integrated Strategy for Closing the Gap in Indigenous Disadvantage, 2008)

As part of the *National Education Agreement* endorsed by the Council of Australian Governments (COAG) in 2008, an *Indigenous Education Action Plan* was sanctioned in 2010. State and Territory Implementation Plans under National Partnerships will inform progress at local and regional levels. Both levels of government commit to developing local and regional strategies to achieve COAG targets with Indigenous participation.

Evidence based reforms are underway that target the issues in an integrated fashion:

- Improving attendance rates
- Improving enrolment rates
- Improving literacy and numeracy
- Developing an Indigenous education workforce
- Improving student engagement
- Improving teacher quality to better support Indigenous students
- Improving parental and community engagement
- Wrap around support including extended service models for schools
- Improving retention rates
- Improving transitions from school to further training or education
- Creating high expectations for Indigenous youth
- Readiness for school
- Pathways to post school options
- Addressing disadvantage in low socio-economic status school communities

The Indigenous Education Action Plan for 2010-2014 outlines how Ministers will work together to close the gap targets and create structural reforms and innovations. The Plan was informed by Australian Directions in Indigenous Education 2005-2008 that called for a national strategy to improve educational outcomes for Indigenous students. Prominent Indigenous academics contributed to the report. The Ministers decided to designate a group of schools called “focus schools” to lead the specific actions. The National Indigenous Reform Agreement specifies six principles to guide implementation:

- Priority principle: Programs and services contribute to closing the gap by meeting targets while being appropriate to local community needs
- Indigenous engagement principle: Engagement with Indigenous parents, students and communities is central to the design and delivery of programs and services
- Sustainability principle: Programs and service are directed and resourced over an adequate period of time to meet COAG targets
- Access principle: Programs and services are physically and culturally accessible to Indigenous people recognizing the diversity of urban, regional and remote needs
- Integration principle: There will be better collaboration between and within governments at all levels and their agencies to effectively coordinate programs and services
- Accountability principle: Programs and services will have regular and transparent performance monitoring, review and evaluation

Each state and territory has plans to meet targets in readiness for school, community engagement, literacy and numeracy, attendance, leadership, workforce and quality teaching development and pathways to real post school options. An Annual Report presents the national results, a summary for each jurisdiction, an evaluation of the impact of the work to inform the evidence base of what is working to improve outcomes, an analysis of cohorts of the Indigenous students, a report from each Indigenous Education Consultative body on the progress of the Plan and research reports by NGOs and government.
A national online clearinghouse of information and efforts to improve the quality and use of data are also part of the Plan. The emphasis appears to be focused on a new national curriculum with accountability standards that may move in the direction of standardized testing, teachers’ merit pay based on student performance, or funding by test results.

**Power Sharing**

Sharing power in Indigenous education is a formidable task since it implies expenditures of significant amounts of funds and the willingness to share policy formulation that is usually top down and reserved for government Ministries in Australia.

If Indigenous Nations and their representatives cannot be equitably involved in determining the best educational future for their children, the status quo will remain and another generation will be lost to neo-colonialism’s prison of systemic limitations. Australia is now a signatory as of 2009 to the UNDRIP and has a commitment to fulfilling the spirit and intent of the articles. Community models of education built on the foundation of Indigenous cultures and languages can be another policy approach that could do no worse than the present assimilative model.

The reform movement in the education sphere in Australia is of paramount importance to raise the educational achievement levels of the Indigenous peoples, not according to paradigms dictated by government but by new models, new mindsets and evidence based research done in partnership with Indigenous people.

The truth is that Indigenous people in Australia are the most disadvantaged of Indigenous Nations across all developed countries. (Cooke, Mitrou, Laurence, Guimond and Beaven, 2007; Ring and Brown, 2003)

They are the most disadvantaged group across all socio-economic indicators and they remain the most educationally disadvantaged Australians.

Australia has “the worst Indigenous educational outcomes of any comparable Western settler society.” (Bradley, Draca, Green, Leeves, 2007) The Australian government seems to be moving in a direction of top down policy development, setting goals, targets and preferred outcomes for local schools in districts that are remote and rural as well as urban. Although engagement with Aboriginal people is mentioned in their strategies, the impetus for change, the goals and the methodology appears firmly within the government’s locus of control.

Current scholarly themes in empowerment through education refer to culturally responsive education. Will culturally responsive classrooms and schools linked to self-determination improve academic achievement and promote equity in Australia?
Craven and Tucker offered the following directive to increasing Aboriginal student academic performance,

“NSW Aboriginal Group Incorporated cannot think of a single problem plaguing Aboriginal children

-alienation from school, high rates of absenteeism, non-enjoyment of school, significant under-achievement, reduced educational and career aspirations, youth depression and suicide, conceptions about employment prospects and inability to secure rewarding, productive careers-

That is not traceable, at least in part, to the failure of education systems to maximize our children’s identity self-concepts as Aboriginal people, proactively enhance our children’s academic self-concepts, and ensure our children in general feel good about themselves. We feel that maximizing Aboriginal children’s self-concepts is fundamental to enhancing them as individuals and ensuring they reach their full potential. (Craven and Tucker, 2003)

Teachers and Pedagogy

Most teacher education programs do not prepare their student teachers with pedagogy suited to Indigenous students or in the most effective ways to utilize Indigenous content. Newer mandatory teaching certification programs are now demanding that their teachers in training take courses on Indigenous knowledge and pedagogy. Some useful references include, “Teaching The Teachers Aboriginal Studies,” by Craven, Halse, Marsh, Mooney and Wilson-Miller, 2005 and volume two of the same title in 2005. Teachers who have taken mandatory courses have higher self-concepts about Aboriginal content and understand how to teach Aboriginal students. (Craven et al., 2010; Mooney and Craven, 2005)

National and international studies have confirmed that teaching is a major factor in affecting students’ academic progress. (Hattie, 2003; Rowe, 2003) The quality of pedagogy is a prime factor in improving student outcomes and accounts for 30% of the variable on factors affecting student academic performance. Significant work on teaching has been done by the New South Wales Department of Education and Training (NSW DET) in a program called Quality Teaching.

The NSW Quality Teaching Framework has developed a teaching strategy that sets high expectations for students and organizes pedagogy into higher intellectual levels of synthesis. The effectiveness of the strategies is being tested now. The research companion in this program for Aboriginal education is called “Seeding Success: Research Based Interventions for Aboriginal Students”, and it remains the challenge for the next decade in order to provide teachers with sound constructs grounded in theory and proven by research outcomes.
Fresh solutions are needed at multiple levels of engagement with Aboriginal students, their families and communities. Questions remain on what aspects of teaching in the classroom affect Aboriginal student outcomes; what kind of school culture contributes to active Aboriginal student engagement; what are the characteristics of the Aboriginal student’s life that impact achievement? New models of Indigenous education are needed that account for theory and practice grounded on research that shows effective curriculum, classroom management, pedagogy, school climate and parent/community relationships with the school.

Research:

At the onset of the new millennium, there is still very little empirical research in Australia on identifying strategies that lead to success in educational outcomes for Aboriginal students or contribute to new theories and practice involving evidence based studies. A body of scholarly literature is essential for testing causal relationships and variables, identifying strategies that work, and generating solutions that will result in tangible outcomes.

The national and international research agenda must include Aboriginal education research as a matter of urgent priority.

The lack of research has been confirmed by national studies commissioned by government, Indigenous educators, the Department of Education and Training and the Australian Council for Educational Research. (Bin-Sallick, 2005; DET, 2005; Mellor and Corrigan, 2004; Craven, 2006)

The impact of reliance on qualitative data or assumptions on how Aboriginal children learn can no longer be considered sustainable because schools fail to provide outcomes comparable to non-Aboriginal peers. Scientific investigations need to inform policy based on sound theoretical models and evidence from testing with reputable research methodologies that involve meaningful representation of the people, respect the cultural and historical traditions of Indigenous peoples and are grounded in culture.

In 1994, Bin-Sallik, in a review of Aboriginal education research showed that much of the literature was descriptive in nature that empirical research was virtually absent and almost no research existed on how to implement change. In 2004, Mellor and Corrigan made another review of Aboriginal education research and found, “There is not, in Australia, a research tradition of quantitative measurement in the Indigenous education literature. To ignore such measurement only continues to do injustice to the gravity of the problem.” (p. 46, 47)

As in Canada, Indigenous education research is limited to small case studies, qualitative reports, small community studies in specific geographical areas, with a lack of integration in related fields such as social services, health, economics or
psychology. Educational research has largely been isolated into its own niche leading to limited discourse and assumptions of drivers for academic achievement.

“The times are such that we cannot continue, as has been the case over at least two decades, to accumulate through reviews and research, understandings about teacher education and teaching, but irrespective of these findings make no response. By failing to adequately support teachers whose work is so critical, we fail students, parents and society which schools serve.” (Ramsey, 2000, p. 18)

Self-Concept

International research has suggested that self-esteem and identity as part of self-concept are related to student achievement. (Purdie et al., 2000) The work of Sommer and Baumeister, 2002 shows extensive literature across many disciplines and theories suggesting that self-concept advances supports healthy coping mechanisms, promotes goals and positive attitudes that influence achievement.

The OECD asserts that self-concept is “closely tied to students’ economic success and long term health and well-being and as such deserves to be treated alongside academic achievement as an important schooling outcome.” (OECD, 2003, p. 9)

There are multiple facets of self-concept that impact Aboriginal student performance and achievement. These will differ from the mainstream and thus any testing of the variables should be done within the context of Aboriginal culture, values and norms and worldview. Research in primary divisions is lacking as well and so some attention should be placed here.

Research that is specifically targeted to the needs of Aboriginal learners, especially in the primary division, is critical to understanding the key drivers that affect the early academic performance of Aboriginal students. Culturally appropriate measurement tools, strong statistical analysis, better methodology, and instruments that can identify good teaching, positive and nurturing classroom environments, and measures of Aboriginal self-esteem and well-being that influence performance are all needed as necessary elements of a reform movement. Enhancing the self-concept of Aboriginal students offers a new solution for intervention that can be investigated in a research construct.

Judge and Bono (2001) presented a meta-analysis that revealed that components of a positive self-concept were among the best predictors of job performance and job satisfaction.
BEST PRACTICES

The government of Australia (COAG) would be well advised to carefully study the impact of the *No Child Behind Act of 2001* in the United States. This is a warning beacon for their own development process aimed at nationalizing a standardized curriculum and moving towards test driven accountability. The careful study of outcomes of NCLB on family and community participation in educational decision making is crucial to gaining community support for reforms and also to promote Aboriginal community empowerment and self-determination. The study should also examine how Indigenous languages and cultures are affected in their presence in the curriculum and pedagogy as well as determining how assessment can support culturally responsive pedagogy and how longitudinal research might be designed to get at the true nature of student achievement variables.

Evidence based studies from New Zealand and the US offer models of local control of education, cultural and linguistic congruence with the family and community, with results in student achievement in literacy and numeracy exceeding state accountability standards.

The work of Te Kotahitanga in New Zealand targets a comprehensive model for secondary school education, longitudinally tested, that proves that Indigenous student achievement is improved in a culturally responsive education model based on community empowerment in a public education paradigm operating within a construct of national accountability. The transferability of such work is an important aspect of development in education from countries sharing similar histories of colonization and now post-colonial revitalization based on cultural and linguistic platforms.

Successful programs will be built on Indigenous history, language, culture, community control and respectful, equitable relationships between Indigenous Nations and Government. Nothing less will meet the needs of Indigenous learners.

Exciting work in pedagogy for Aboriginal learners is being conducted in New South Wales as part of the Quality Teaching framework in public schools. The conference presentation by Dr. Rhonda Craven, “Seeding Success: Some Potential Ways Forward for Aboriginal Education”, 2010, offers the following guidance on the necessary element to “seed success.”

- Quality early childhood education
- Literacy
- Quality secondary school education
- University education
- Teacher education
- Key psycho-social drivers of self-concept, high aspirations, addressing racism)
• Quality research

BEST PRACTICES IN EARLY LEARNING

Multifunctional Aboriginal Children’s Service (MACS)

Located in Tamworth, New South Wales south of Sydney, the MACS center is an Indigenous childcare licensed for 39 children. The Centre offers programming to those vulnerable children experiencing developmental delays, health or disability problems and behavioral issues. (ARACY, 2007, p. 20)

A registered Early Childhood Nurse with midwifery and childcare qualifications provides a comprehensive set of health services to children and their families. Children have snacks and meals at the center. Transportation is provided.

The success of MACS is attributed to its range of support services.

Aboriginal-specific education and care in early learning are preferred by Indigenous people in Australia because it offers cultural safety and strong cultural contexts.

Cultural safety is defined as:

• Employment of Indigenous staff
• Reflexive non-Indigenous practitioners
• Acknowledgement of the importance of relationships to strong programs and services
• Inclusion of and support for the shared care of Indigenous children
• Provision of transport
• Support for Indigenous ways of knowing and being in the world
• The place of history and acknowledgement of dispossession, family separation and institutionalization
• Holistic “joined up” programs which meet the diverse intellectual, physical, social, emotional, health and well-being needs of children and their families

Service providers should meet the criteria for culturally appropriate early learning and care:

• Acknowledges the child as strong and autonomous
• Assists Indigenous children to build a strong identity based on both their Indigenous traditions and values, and understanding of dominant, non-Indigenous traditions and values
• Incorporates the child’s extended family and community in their education and care
• Supports culturally relevant learning environments where children are happy, feel powerful, can make choices and which allows for their own routines
• Acknowledges the importance of literacy in Indigenous languages and competence in Standard English
• Underpins programs and services with attention to nutrition, health and well-being (Indigenous Early Learning and Care, ARACY, 2007, p. 46,47)

A continuing debate is occurring internationally around the merits of Aboriginal specific services or mainstream services in the early education and care of Indigenous children. “The extent to which any service is capable of delivering such an inclusive program depends upon a culturally safe and culturally strong approach delivered by Indigenous staff or people acceptable to Indigenous children and their families.” Indigenous education and care professionals suggest that Indigenous specific services are currently best able to deliver this approach.

They articulate some core principles for the Indigenous children and families service sector:

• The primacy of culture
• The primacy of self-determination and Indigenous sovereignty and the related principles of self-management and community control
• The need to develop capacity building for a marginalized/colonized community in a dominant/colonial context
• The primacy of addressing children’s developmental needs
• The primacy of holistic, strengths based community development approaches to child welfare encouraging and facilitating communities “doing it for themselves” rather than “being done to”

Other programs in Australia for Indigenous early learning that are public yet attempt to incorporate the core principles into their programming to meet the needs of Indigenous children and their families are the Box Ridge Transition to School Program, the Goonellabah Transition Program, both in New South Wales and the Let’s Start It Program in the Northern Territory.

There is a lack of longitudinal research on Indigenous early learning and care to study children who have attended Aboriginal specific programs comparing their health, education and social outcomes with Indigenous children who have not had Indigenous specific learning experiences.

Evaluations should also be conducted of non-specific Indigenous early learning centers to assess long-term outcomes of improved health and behavioral outcomes, school transition and attendance ultimately affecting academic performance levels of Indigenous students.
One of the primary elements of early learning is the approach to reading that is grounded in the early years. Early reading failure has far reaching social implications including problematic behavior, poor social relations, and eventually delinquency. “These outcomes mean the issue of learning difficulties is one for the whole of society.” (Marsh, Tracey and Craven, 2006)

BEST PRACTICES: RESEARCH IN CULTURALLY RESPONSIVE PEDAGOGY

The Victorian Quality Schools Project

Rowe in 2003 showed that the quality of teaching as primary determinant of academic outcomes for all students in Australia. The Victorian Quality Schools Project (Hill and Rowe, 1998) looked at data on literacy and numeracy for 13,700 students in primary and secondary schools for all students. The research was conducted in 90 government, Catholic, and independent primary and secondary schools.

Rowe concluded that, “the quality of teaching and learning provision is by far the most salient influences on students’ cognitive, affective, and behavioral outcomes of schooling-regardless of their gender or backgrounds.” (Rowe, 2003, p.22)

Rowe also commented on the fact that very little was known about how Aboriginal students view effective teaching and the qualities of effective teachers and how these qualities affect educational outcomes for Indigenous students. The findings of this study have implications for theory, research and practice among teachers and schools serving Aboriginal students.

The Centre for Educational Research has a number of projects underway and in the proposal stage that directly refer to the educational interventions needed by Aboriginal learners to create an environment in the school for optimal success.

1. Seeding Success and Research Based Intervention for Aboriginal Students: Impact of Quality Teaching, Effective Schools, and Psycho-Social Drivers on Educational Outcomes (Craven, 2010)

Seeding Success is the first large scale research project sampling Indigenous and non-Indigenous primary school students to test the findings of the NSW Quality Teaching Framework and the in depth research of Rowe (2003) and Hattie (2003). The results of the study will link quantitative and qualitative results with achievement, optimism, enjoyment of school, resilience, self-concept, depression and perceived discrimination. Hattie and Rowe have paved the way with their previous work in self-concept, the role of the teacher in affecting student achievement, the characteristics of expert teachers and the aspects of Quality Teaching that impact student achievement. The findings have some important
aspects that Aboriginal education may find useful to test in *Aboriginal specific research models*.

The research will identify factors linked to successful educational achievement for Aboriginal students in New South Wales in Grades 3-6. The study covers 52 randomly selected schools both urban and regional areas.

The partners for the project are the Professional Learning and Leadership Development Directorate, a team of researchers in Aboriginal education from the Centre for Educational Research, the Research and Evaluation Unit in Planning and Innovation and the Aboriginal Education and Training Directorate.

The history of quality teaching shows it as the offshoot of earlier programs begun in the US and later brought to Queensland as authentic pedagogy and productive pedagogy, later emerging in New South Wales as quality teaching.

The longitudinal study of *Quality Teaching* in the schools in New South Wales offers explicit models of professional development for teachers, a specific teaching model and practice guides. If the extension of this research were to be applied to Aboriginal students’ needs, what aspects of quality teaching would be culturally compatible with Aboriginal culture, languages, pedagogy, curriculum, family/school relationships, and so on? The question is an important one since approximately 80% of Aboriginal children and youth attend public schools in the mainstream.

In 2005, the Department of Education and Training in New South Wales, completed a review of Aboriginal Education and identified key characteristics of effective schools that contribute to Aboriginal student achievement:

- Valuing of Aboriginal culture
- Partnerships of Aboriginal community and schools
- Aboriginal content in the curriculum
- Anti-racism policy and its application
- Celebration of Aboriginal cultural events
- Community involvement in the school

How do the characteristics of effective schools mentioned above strengthen the schooling experience for Aboriginal children? How does strengthening self-concept of Aboriginal children mitigate some of the challenging factors affecting student achievement such as bullying, racism, peer discrimination, teacher discrimination? These are some of the questions to be explored in the research.

Earlier research demonstrated that Indigenous students set lower aspirations for high school than their non-Indigenous peers. This is a large scale study of 346 Indigenous students and 1462 non-Indigenous students to identify psychological factors that have a causal impact on educational aspirations.

Preliminary results have showed that academic components of self-concept and academic motivation have direct relationship with Indigenous students’ school outcomes such as school enjoyment, achievement and school aspirations. Perceived racial discrimination contributed to disengagement from school for Indigenous students. Discrimination also had the strongest relation (negative) with Indigenous students’ standardized achievement in spelling and math.

3. Maximizing Aboriginal Students’ Potential: Roles of Self-Concept and Motivation in Making Real Difference to Desirable Educational Outcomes
(Craven, Martin, Munns and Ha, 2006; Munns, Martin and Craven, 2006)

The causal impact of psychological factors on the academic performance of Aboriginal secondary school students is being studied. Little research exists on Aboriginal learners in the primary school setting. Preliminary results show similar findings to the secondary school in that the Indigenous students held slightly lower academic self-concepts and slightly lower motivational tendencies.

4. Indigenous Students Aspirations: Dreams, Perceptions and Realities
(Craven et al., 2005)

In a large scale study of 1151 non-Indigenous high school students and 517 Indigenous students across three states, findings pointed to the need to account for multiple dimensions of Indigenous students’ self-concept. Indigenous students scored higher on general appearance, physical and art self-concepts in comparison to their non-Indigenous peers. But the scores for Indigenous students were lower in math, school, verbal, honesty, emotional, opposite and same sex relation self-concept. Academic self-concept is related to academic achievement and to enjoyment of school, aspirations to finish Grade 12 and also to absenteeism.

The research undertaken above by the Centre for Educational Research will yield seminal results for planning and further inquiry. Such knowledge is crucial to the evolution of Indigenous education from an assimilative paradigm to one of empowerment, success and equity with full participation in society.

AOTEAROA: New Zealand

From Colonization to Activism for a Bicultural Society
Traditional Maori education nurtured and engendered children who were exceptionally intellectual and high spirited, physically strong and creative. Kendall and missionary teachers of the time around 1818 described Maori children as heathen, wild and spoiled. However, Kendall had to admit that, “they show a degree of skill quite equal, if not decidedly superior to that of a School of English Boys under similar circumstances.” (May, 2005, p.29)

Maori child rearing placed children at the center of community life and according to Papakura, “The Maori never beat their children, but were always kind to them, and seemed to strengthen the bonds of affection which remains among Maori throughout life.” (Papakura, 1986, P. 145)

Maori values of freedom and high spiritedness in child-rearing, nurtured curiosity, persistence and endurance that led to children growing up and being prepared to stand up and fight for the mana of their people. (Morehu, conference presentation, 2009, p. 2)

Maori experience in schooling was soon to change in the 19th century as the English arrived in the Rangihoua or the Bay of Islands on Christmas Day to initiate a colonizing epic that would last for 200 years. The face of colonization brought a transformation of life, land and leadership resulting in the Maori being marginalized as the English reproduced dominant/subordinate power relationships between the two peoples. As the leader of the Maori in this village site engaged in political protocol to welcome visitors called “Aitanga”, he was showing, “a set of practices and processes which are played out in meetings between peoples. At their core, these practices and processes involve reciprocity: a necessary giving and receiving by both parties equally committed to a relationship.” (Jenkins, 2000, p.6)

Aitanga allowed Marsden to establish a mission post and a school into Rangihoua through the leadership and persuasive speech of Ruatara the leader of the people of that region. The “Maori did not passively receive Europe but actively engaged with it. They chose, adjusted, and repackaged the new, in many respects, into a less culturally damaged form. They did so with courage and receptiveness.” (Belich, 1996, p. 154)

The differing theories of why Pakeha (White people) were allowed into the land were expressed by Jenkins (2000) “…for Ruatara, contact with Pakeha meant a huge technological transformation of Maori society. For Marsden, contact with Maori meant an evangelical and imperialist transformation of Maori society” where Maori would serve the dominant power. (Jenkins, 2000, p. 88) In the words of Morehu, “We can assume with some confidence however, that Ruatara did not ever envisage that Maori would become Pakeha or that Pakeha would ever become Maori. He envisaged that we would be two distinct cultures living in harmony with both cultures intact.” (Morehu, Conference Presentation, 2009, p.2)
Wars over the land escalated the educational process in order to destabilize the language so that without language, the culture and the fighting spirit would be diminished.

In 1840, the Tiriti o Waitangi was signed as a treaty with historical obligations that continue through time. The Maori allowed for British governance of their lands in exchange for protections stipulated in articles. Article III deals with the obligation of the Crown to protect Maori interests and extend to them the same rights and privileges as British subjects. (Sharp, 2001) The Treaty established the primacy of the Maori and the life that their Ancestors envisaged for them on equal footing with the rest of society.

The Government established schools for the Maori under the Native Schools Act of 1867 and funded education. English was the medium of instruction and slowly replacing Maori as a language of instruction.

Corporal punishment was introduced to speed up compliance. Governor Gray reported, “It is with much pleasure we observe that the tenor of the scholars’ behavior is reported to us docile, teachable and generally obedient…” (Jenkins, 2000, p. 125) hardly the intelligent and high-spirited children observed in earlier times by the missionaries.

“In 1900, over 90% of Maori new entrants spoke Maori as their first language. In 1905, the Inspector of Native Schools issued an instruction that resulted in the punishment of children for speaking Maori for the next 50 years. The salience of messages such as this is evident in that by 1960 only 26% of young Maori children were fluent in their own language.” (Walker, 2004)

The era of the Native Schools from 1867-1969 became coloured with ongoing tension and oppression of Maori as behaviors, values and ways of life came under scrutiny of government policies and values.

Maori in the 1960’s became politically active and organized against oppressive social policies. Resistance movements arose primarily in cities where the outcry for more political power, language and culture became the call of the day. Organizations like Nga Tamatoa took the lead in voicing discontent regarding oppression. By 1975, the loss of Maori homelands brought the issues of land loss to the forefront in united Maori protests that lead to a memorial of rights that was presented to the Prime Minister, Bill Rowling in Parliament. The Waitangi Tribunal was established in 1975 to review the losses from the inception of the Treaty of Waitangi in 1840.

The Maori action to change assimilation policies of the government had arrived at last and the thousands who marched in public demonstrations to show disfavor with the status quo would no longer be silenced. The government appointed Kara
Puketapu as head of Maori Affairs to promote the social, cultural and economic well-being of the Maori. He introduced Tu Tangata as a way to deal with Maori needs.

Richard Benton was a key player at the time with his research and prediction on the death of the Maori language with less than 5% of the children speaking Maori. His work was the fuel for the engine of change to start a process of language revitalization that would see the return of the language in two generations. The caution of the wise ones shook Maori to the core, “If you do not speak Maori, you are not Maori.” “Te reo Maori serves as the medium through which symbolic and cultural components are properly united and Maoriness most appropriately expressed.” (Durie, 1997, p. 152)

In Aotearoa the debate around early learning is surprisingly central to the national political debate on Maori self-determination, language and culture revitalization and educational rights based on the Treaty of Waitangi in 1840. The founding document for Aotearoa/New Zealand is *Te Tiriti o Waitangi* and is used for education since it guarantees participation, power and partnership between the Maori and the English Crown.

**BEST PRACTICES IN EARLY LEARNING IN AOTEAROA NEW ZEALAND**

**Early Learning As The Catalyst for Language and Cultural Revitalization And Self-Determination**

The work of countless women and their families to establish Kohanga reo early learning centre with language immersion and cultural life ways of the Maori was born and was the seed of renewal that inspired so many to return to their Indigenous language usage. Kohanga reo was designed to renew Maori language and culture while empowering Maori to take control of decision making for curriculum, operations, enrolment and teachers. The goal of Maori education was to ensure that their children would be able to actively and successfully be competent in Maori and mainstream worlds, using the languages as tools to facilitate that competence. No longer would Maori children be educated in a school system that did not affirm their ancestral heritage and not allow them to be Maori. The pursuit of excellence in education for Maori had begun.

During the 1980’s and 1990’s, Kohanga reo was prized for its founding role in the revitalization of language, values and culture including Maori ways of knowing and being. The teaching that “my language is my awakening, my language is my strength, my language is my adornment” was firmly rooted in early learning through Kohanga reo and later in Kura kaupapa Maori and wananga Maori for graduates of Kohanga reo. For many Maori families Kohanga reo was seen as the only early learning option and most families did not even consider other early childhood centers. By 1993, nearly half (49.2%) of Maori early childhood enrolments were within Khoanga reo. (Ritchie, Rau, 2009) By 2002, the enrolments in Kohanga reo
had dropped to 32% of all Maori enrolments in early learning. Approximately 68% of Maori children attending early learning are enrolled elsewhere.

The language revitalization process has reached a turning point after 25 years of consistent effort; however, more is left to be accomplished in the next generation if Maori is to be the language of daily use in the home.

“Early childhood services other than Kohanga reo, have generally paid only token lip-service to integrating Maori ways of being, knowing and doing within their curriculum and practice, thereby incapacitating Maori children’s ability to access Maori subjectivities through the educational opportunities provided. This lack of validation of Maori children’s Maoriness is in effect a denial of their right to access, within the state-funded education system, a positive identity as Maori. Furthermore, it serves to reinforce Pakeha ethnocentrism and affirm Pakeha cultural dominance, whilst creating an inequitable situation in which Maori children are constantly judged by Pakeha/Western standards.” (Simon, 1996)

In 1986, childcares, play centers and kindergartens came under the control of the Ministry of Education and its regulations for licensing, funding, training and curriculum. Early childhood leadership was strong and progressive, promoting biculturalism, equity and diversity in its services. The educational leaders of this movement were fully aware of the need for professional credentials in their training and proper remuneration. By 1989, it was decided that a three year Diploma of Teaching program was needed for licensing purposes.

In the early 1990’s, the government of New Zealand became interested in seamless education from early learning to tertiary studies that would support an emergent economy for the country. Margaret Carr and Helen May of the University of Waikato with the Kohanga Rea National Trust (Maori immersion and ECE) as partners began a broad consultation through a curriculum team with parent groups and Maori representatives. The link to Maori culture, language, parents, family and community would become the pillars for the new curriculum. Their work lead to the comprehensive early learning curriculum called Te Whariki.

In 2002, government issued a policy document that established teacher lead early learning as quality early learning and it received more funding than the Kohanga reo sites. In the document, the Ministry of Education called for more teachers for Maori children as a response to the consultation phase where the Maori asked for Maori early learning teacher education. By 2004-2005, the Bachelor of Teaching and Learning (Maori Education-The Early Years) began its programs. The graduates of the program can teach children 0-8 years in both early childhood programs and in primary school. The early years has been redefined according to Maori perspectives on the ages and stages of childhood. The courses are offered sometimes off site and in blocks enabling students to work as well.
Language and cultural revitalization and the right to be Maori in the education system of Aotearoa depends on constant vigilance on the part of Maori to establish equal power relationships, and to take responsibility to ensure that there is a culture of achievement and educational excellence.

The Move to Culturally Responsive Curriculum

The curriculum for early learning in New Zealand for all children is Te Whariki and is based on four principles of empowerment, holistic development, relationships and family and community. It is a bicultural document written in both English and Maori with supporting documents including a pre-service teacher education program on Te Whariki offered at Waiairiki Institute of Technology. Te Whariki holds the concept of the “woven mat for all to stand on” or a spider web model of a spiral curriculum that reflects a broad framework of principles and approaches rather than curriculum content. The approaches were designed to take different formats as they were implemented in various regions of Aotearoa. According to Helen May (2001), “Rather than employing a one-world view of human development emptied of context, or articulating a curriculum with the subject based learning areas and essential skills of the school, Te Whariki chooses a socio-cultural approach to curriculum based on a desire to nurture learning dispositions, promote bi-culturalism and to reflect the realities of the young children in the services. It makes a strong political statement about young children: their uniqueness as learners, their ethnicity, and their rights in New Zealand society. The whole is underpinned by a complex learning theory based on up to date research on young children’s psychology and learning. Where biculturalism is concerned, the Maori principle of “empowering children to learn and grow” was taken as the founding principle of the curriculum.” (p.17) The five major aims for children of well-being, belonging, contribution, communication and exploration were developed as equivalent domains of empowerment for children in both cultures. The curriculum acknowledges the ages and stages of child development while also offering programming for all children through complex revisitations to the material in the spiral.

However, a fundamental question was raised regarding the implementation of this curriculum. How can non-Maori early childhood educators who have a limited or non-existent knowledge of Maori language or cultural ways authentically teach the content in this curriculum?

The Ministry of Education has confirmed that 93.1% of early childhood educators working in centers not Kohanga reo are not Maori, do not speak Maori and do not have an in-depth understanding of Maori culture and values. A survey done by Harkess in 2004 found that only 1% of non-Maori early childhood educators used the Maori language more than 30% of their teaching time.
The question of language acquisition for Maori children was brought forward since so many Maori children attend mainstream early childhood learning centers. The Ministry of Education (2003) confirmed demographic projections that, “by 2040, the majority of children in our early childhood centers and primary schools will be Maori and Pasifika.” The analysis of such trends has tremendous implications for the training of early childhood teachers in both Maori language and cultural traditions. If we are to avoid the veneer of biculturalism and tokenism of employing only limited use of the Maori language and surface culture, and reach deeply to embrace culturally specific patterns of child rearing and values, behaviors and philosophy then a much more defined strategy must be initiated now for teacher training.

A report in 2002 by the Ministry of Maori Development showed the research on the deficit regarding the inclusion of Maori in pre-service teacher education programs. Teachers who graduated reported lack of knowledge or confidence in working with Maori children and parents.

There is an active paradigm shift occurring in the 21st century where Maori goals are articulated to inform educational goals and policy:

- To live as Maori
- To actively participate as citizens of the world
- To enjoy a high standard of living and good health

The challenge of education is to match the reality of Maori worldviews and those of the society and to understand how they impact each other. There are then implications for changes needed in adjusting teaching practice, teacher training, curriculum, assessment, performance indicators for staff, policy and program evaluation.

Cultural standards are an essential component of the program that describes how early learning can be authentically Maori.

- Tino rangatiratanga-the right to determine one’s own destiny with parents and children involved in times of decision making
- Taonga tuku iho:-the treasures of the Ancestors provide principles to live by including Maori culture, language and knowledge systems, values and these are normal, legitimate and valid
- Ako-we learn from each other usually through storytelling and sharing
- Kia piki ake I nga raruraru o te kainga-Participation reaches into Maori homes and brings those families into the learning environment
- Whanau-parent relationships in early childhood is primary and sets in motion a pattern of behaviors where commitment, connectedness and responsibility are fostered
- Kaupapa-students achieve when language and culture are in close relationship both at home and school
Many references are available that chart the historical evolution of early learning in New Zealand shaped by emerging Maori consciousness for greater control over their education and for a more equitable share of the economic and social developments in their homeland of Aotearoa. Their education system can be described as bicultural with strong institutional development of their own schools at every level, especially tertiary education since the turn of the century.

A movement in productive pedagogy begun in the United States, tested there and moved into Australia as authentic pedagogy and later maturing into what is known today as quality teaching has also influenced education in New Zealand. Quality teaching is an initiative that continues to create discussion around equity and biculturalism in the classroom as it raises issues of equitable funding levels based on need, the definition of quality, assessment measures for quality education, and the place of research in the search for quality education for Maori.

Quality teaching is defined as “pedagogical practices that facilitate for diverse children their access to knowledge, activities and opportunities to advance their skills in ways that build on previous learning, assist in learning how to learn and provide a strong foundation for further learning in relation to the goals of the early childhood curriculum Te Whariki and cultural, community and family values.” (Pakai, 2004, p.7)

Several key resources should be mentioned for their impact on shaping early learning for Maori. The focus on early learning was where the impetus for educational renewal began for Maori, leading to developments later in other divisions, policies and institutional developments.

*Education to Be More: Report of the Early Childhood Care and Working Group (1988)* provided a process to develop strategies for strengthening delivery of early learning, affirming the work of teachers at this educational doorway, developing pre-service teacher education programs, establishing early childhood professional support mechanisms and most importantly placing early learning centers alongside state run Kindergartens in the education system.

By 1995, the *Early Childhood Code of Ethics for Aotearoa/New Zealand* was developed through the work of the New Zealand Education Institute and identified principles of practice, a code of conduct and protection mechanisms for children and their teachers. In addition, the Code included how teachers can develop relationships within and outside their profession, established ECE as a profession and made a statement on the value of rights of children, parents, caregivers, community, society, self and colleagues.

The early work of mothers and dedicated family members in the Kohanga reo in the early 1970’s had emerged as a driving force for change for Maori control of education clearly establishing language and culture and Maori life ways as the
foundation for all education Maori. New Zealand has a long history of parents establishing preschools with themselves as providers. In 1996, the Ministry of Education produced *Te Whariki*, a major revision of curriculum whose goals and pedagogy have been used in renewing curriculum at the primary, elementary and secondary levels.

Following *Te Whariki*, in 1998, the Ministry of Education developed the Desirable Objectives and Practices (DOPs) in the paper, *Quality in Action*. Quantitative indicators of quality in education focused on class size, adult child ratios and rates of staff turnover. These indicators require tools like reflective practice and research to measure results. Each of the DOPs has a bicultural component so that all children have an enriched experience as early learning seeks to meet the needs of both Maori and Paheku as Treaty partners. The elements of quality teaching are part of the ECE system. The document also specified the need to work with parents to extend the learning of each child and to develop a curriculum that assists all children to be confident learners, competent, healthy in mind, body and spirit, secure in a sense of belonging, and secure in the knowledge that they will make a valued contribution to the world.

In 1999, *The Quality Journey* outlined the best management structures for home based childcare and ECE learning centers.

*Including Everyone* produced by the Ministry of Education in 2000 offered guidance to those with learning or physical disabilities.

In 2002, the Ministry of Education created a 10 year plan to address the issues of low participation rates in early learning by services for low socio-economic regions and rural areas in *Early Childhood Education Strategic Plan October 2002 Pathways to the Future*. The goals of the plan include:

- Enhancing the relationship between Maori and the Crown as a collaborative relationship
- Improving the quality and effectiveness of ECE services to Maori
- Increasing the participation of Maori and their caregivers/parents in ECE

Research on the vision of education for their children held by Maori confirms that even those families who send their children to mainstream child cares and schools want their children to learn the Maori language and to have opportunities to do so within the school. (Durie, 1999; Else, 1997) Smith (1997) adds that Maori aspirations for their language and culture go hand in hand with tino rangatiratanga (self-determination) exercised through whanau (family) support structures.

Given the statistics on low Maori participation rates in ECE, the government made plans to raise the rate from 45% in 2001 to 65% in 2006. Initiatives began such as the *Promoting Participation Program (PPP)* where local organizations were asked to
develop local solutions for Maori families. The Ministry of Education conducted a ministerial review of the PPP in 2005 and acknowledged that, “there is little evidence on the effectiveness of PPP. Monitoring data indicates that the program is successful, but no evaluation has been carried out.”

The review does refer to anecdotal evidence that PPP has contributed to “increased awareness and understanding of ECE in communities that have had PPP projects. Ministry of Education iwi partners, in particular, have reported significant change in the status of ECE in their communities as a result of PPP projects.” (Ministry of Education, New Zealand, 2005)

At the same time, Ritchie and Rau (2009) provide the perspective that although these strategies can be well intentioned, they can also be viewed as “off-loading the responsibility for dealing with the issues to community groups. The wide-ranging contextual issues for this “non-participation,” such as poor quality and culturally inappropriate early childhood provision are sidestepped, as is the underlying racism that is the ongoing legacy of the history of colonization in this country. (Ritchie and Rau, 2009) Racism has served historically to normalize and legitimate Eurocentric dominance.” (Davies, Nandy and Sardar, 1993)

In a study by Ritchie in 2002 and summarized in 2005, early childhood educators shared experiences of racism within early learning centers. Such things as negative remarks by educators or parents, assumptions of poor parenting by Maori parents, a lack of effort by educators to pronounce the Maori names of students, characterize Maori as the problem for lack of achievement, poor participation in early learning settings and poor social/health indicators. “Since Maori poverty and lack of achievement are seen as self-manufactured and self-inflicted, Pakeha have no reason to feel guilty or seek to rectify this situation. (Smith, 1997) Pakeha educators, “cushioned by the comfortable white privilege of whiteness” (Lewis, Ketter, Fabos, 2001) are able to exercise choice as to the extent to which they included te reo me nga tikanga Maori (Maori language and culture) within their teaching.” (Ritchie and Rau, 2009, p. 99)

In 1994, Joyce King offered the term, “dysconscious racism” whereby we can observe the privileged positioning of educators mired in an institutional setting using western philosophy, values and practice, discourse, constructions that subvert or subordinate others in a power dynamic.

Awhina Matua was developed to share with families how important early learning is to the lifelong education pathway of children.

WhanauTautoko I Te Ora was offered as a parenting program delivered in the home by the Maori Women’s Welfare League. Parents As First Teachers was a program supporting parents at home with early learning strategies to support the work of ECE programs for their children. These have all been successful in raising the participation rate of Maori children in early learning centers.
Challenges remain in the quest for **equitable funding** to implement the new curriculum. The delivery of a curriculum is dependent on institutional supports such as regulations, accountability, training, and funding levels. Highly trained staff is desperately needed.

The other dispute is **assessment**. *Te Whariki* emphasizes goals as opposed to content knowledge and skills. New ways to evaluate that are consistent with the goals of *Te Whariki* are needed. “Given a curriculum model that sees learning as the development of more complex and useful understanding, knowledge and skill attached to cultural and purposeful contexts, rather than a staircase of individually acquired skills, the assessment and evaluation of children and programs becomes a complex matter. (Carr and May, Penn 2000)

**BEST PRACTICES IN ELEMENTARY EDUCATION IN AOTEAROA NEW ZEALAND**

In 2009, McNaughton and Lai and Lai et al. (2009) reported studies at the University of Auckland in partnership with schools to improve achievement levels in reading for Maori students in Years 4-8. The studies involved 10,000 students in 48 schools with 250 teachers. Their work was based on standardized testing and was unmatched for its scale and rigorous statistical analysis.

At the deepest level of policy formulation, the work was questioning culturally responsive schooling and standardized testing as competing forces or was there room to bridge? The study was intensely rooted in community and culture with attention paid to linguistic, identity and cultural profiles within the community.

Teachers were trained in the use of a multitude of instructional procedures so that they could respond to the local cultural, linguistic identities of their Indigenous students. Instructional design was based on local knowledge of teaching and learning so that content could culturally align with that of the learners. In replication studies, different instructional programs emerged in response to differing cultural needs.

Improvements in reading were substantial. McNaughton and Lai (2009) report that the level of gains in the initial study and in subsequent replications was consistently “…in the order of one year’s gain in addition to the nationally expected progress over three years.” (p.70)

In 2003, one of the most influential research studies of the decade was conducted by Dr. John Hattie, Faculty of Education, University of Auckland in a meta-analysis of over 500,000 education research studies on non-Aboriginal students searching for the factors most affecting student achievement in the elementary years.
The findings are summarized below and were tested in 2000 in the US in 300 classrooms. (Bond, Smith, Baker and Hattie, 2000)

Hattie found key sources of impacts on student achievement:

<table>
<thead>
<tr>
<th>Source</th>
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<tbody>
<tr>
<td>Home</td>
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<tr>
<td>School</td>
<td>5-10%</td>
</tr>
<tr>
<td>Peers</td>
<td>5-10%</td>
</tr>
<tr>
<td>Attributes of Students</td>
<td>50%</td>
</tr>
<tr>
<td>Teachers</td>
<td>30%</td>
</tr>
</tbody>
</table>

Hattie (2003) identified student attributes as a primary variable promoting active engagement in school and strong academic achievement accounting for 50% of variance in outcomes. The attributes of a student predict achievement more than any other variable.

A positive self-concept is critical. Current innovations in psychology emphasize positive psychology as embracing life to its fullest using all of one’s attributes. (Vallerand et al., 2003) In this generation it is important to capitalize on the psychology of success to strengthen the resiliency and well-being of Aboriginal students.

The quality of the teacher’s work in the classroom is a key determinant of schooling outcomes. “But it is what teachers know, do and care about which is very powerful in this learning equation. ...The answer lies ...in the person who gently closes the classroom door and performs the teaching act-the person who puts into place the end effects of so many policies, who interprets these policies, and who is alone with the students during their 15,000 hours of schooling.” (Hattie, 2003, p.2)

A summary of this research appears in an article called, “Teachers Make a Difference: What is the Research Evidence?” (John Hattie, University of Auckland, Australian Council for Educational Research, conference presentation, 2003)

“Our argument is that content knowledge is necessary for both experienced and expert teachers, and is this not a key distinguishing feature. We are not underestimating the importance of content knowledge—it must be present—but it is more pedagogical content knowledge that is important: that is, the way knowledge is used in teaching situations.” (p. 10)
In an excerpt below taken from this article, Hattie shows the deep influence of teachers on academic achievement for students and the call for teachers to become not merely experienced in their fields, but experts in the excellence of education.

“Identifying that what matters

Instead, we should be asking where the major source of variance in student’s achievement lie, and concentrate on enhancing these sources of variance to truly make the difference. There have been many studies over the past few years that have asked this question about wherein lies the variance. Most have been conducted using Hierarchical Linear Modeling, which decomposes the variance of many influences such as what the student brings to the task, the curricula, the policy, the principal, the school climate, the teacher, the various teaching strategies, and the home. Ignoring the interaction effects, which are too often, minor, then the major sources of variance are six-fold.

**Students** -- which account for about 50% of the variance of achievement. It is what students bring to the table that predicts achievement more than any other variable. The correlation between ability and achievement is high, so it is no surprise that bright students have steeper trajectories of learning than their less bright students. Our role in schools is to improve the trajectory of all these students, and I note the recent PIRLS and TIMMS studies which have shown that our trajectory for the not so bright students is one of the flattest in the OECD worlds.

**Homes**--which accounts for about 5-10% of the variance – considering that the major effects of the home are already accounted for by the attributes of the student. The home effects are more related to the levels of expectation and encouragement, and certainly not a function of the involvement of the parents or caregivers in the management of schools.

**Schools**--which account for about 5-10% of the variance. Schools barely make a difference to achievement. The discussion on the attributes of schools – the finances, the school size, the class size, the buildings are important as they must be there in some form for a school to exist, but that is about it. Given NZ schools are well resourced with more uniformity in the minimum standards than most countries, it should be less surprising that in NZ the school effects are probably even lower than in other countries.

**Principals** --are already accounted for in the variance attributed to schools and mainly, I would argue, because of their influence on the climate of the school. Principals who create a school with high student responsiveness rather than bureaucratic control (i.e., more like a primary school atmosphere than an Intermediate and unlike so many NZ secondary schools), who create a climate of psychological safety to learn, who create a focus of discussion on student learning have the influence. The effect on learning is trickled through these attributes rather than directly on learning.

**Peer effects** -- which accounts for about 5-10% of the variance. It does not matter too much who you go to school with, and when students are taken from one school and put in another the influence of peers is minimal (of course, there are exceptions, but they do not make the norm). My colleagues, led by Ian Wilkinson, completed a major study on peer influences and perhaps we are more surprised by the underutilization of peers as co-
teachers in classrooms, and the dominance of the adult in the room to the diminution of the power of the peer. Certainly peers can have a positive effect on learning, but the discussion is too quickly moving to the negative powers with the recent increase in discussion on bullying (which is too real), and on the manner students create reputations around almost anything other than pride in learning.

**Teachers**—who account for about 30% of the variance. It is what teachers know, do, and care about which is very powerful in this learning equation.” (p. 2, 3)

Hattie, in the same article, also offers guidance on what makes an expert teacher and the qualities of such a teacher. He identified expert teachers as those exhibiting five capacities that influence their work.

Expert teachers:

- Can identify essential representations of the subject
- Can guide learning through classroom interactions
- Can monitor learning and provide feedback
- Can attend to affective attributes and,
- Can influence student outcomes  (p.5)

These five major dimensions lead to 16 attributes of expertise in a profile not a checklist.

1. Expert teachers have deeper representations about teaching and learning.
2. Expert teachers adopt a problem solving approach to their work.
3. Expert teachers can anticipate, plan and improvise as required by the situation.
4. Expert teachers are better decision makers and can identify what decisions are important and which are less important decisions.
5. Expert teachers are proficient at creating an optimal climate for learning.
6. Expert teachers have a multi-dimensionally complex perception of classroom situations.
7. Expert teachers are more context-dependent and have high situation cognition.
8. Expert teachers are more adept at monitoring student problems and assessing their level of understanding and progress, and they provide much more relevant, useful feedback.
9. Expert teachers are more adept at developing and testing hypotheses about learning difficulties or instructional strategies.
10. Expert teachers are more automatic.
11. Expert teachers have high respect for students.
12. Expert teachers are passionate about teaching and learning.
14. Expert teachers provide appropriate challenging tasks and goals for students.
15. Expert teachers have positive influences on students’ achievement.
16. Expert teachers enhance surface and deep learning. (p. 5-9)

BEST PRACTICES IN SECONDARY EDUCATION IN AOTEAROA NEW ZEALAND

Secondary Education: Te Kotahitanga

Increased international attention on effective teaching practices for Indigenous populations in mainstream schools is now emerging as those populations show high mobility to urban centres. The model of Te Kotahitanga yields excellent guidance on teacher efficacy in culturally responsive pedagogy for schools with implications for schools in both Indigenous communities as well as urban locations.

The model has evidence-based components of effective professional development within the context of culturally responsive pedagogies on a large scale. The project is an ongoing multi-year effort designed to improve the educational achievement levels for Maori students in secondary education. The project began in 2001 by Russell Bishop and his colleagues at the University of Waikato. They listened extensively to Maori students, families, teachers, principals and communities so they could collaboratively develop Maori solutions to raising Maori educational achievement levels while still being Maori in the mainstream system. They called their work culturally responsive pedagogy of relations using the Effective Teaching Profile as a marker for positive relationships with students. Teachers were asked to be the agents of change in their classrooms and to reject the deficit model of blaming Maori students for educational failures.

The project helps teachers self-reflect on their assumptions about their relationships with Maori students and to critically review their own roles in perpetuating high absenteeism and suspensions as well as low academic achievement. Teachers experience the marae (sacred meeting place) setting and protocols followed during the initial 3 day hui (traditional meeting) that guide them in understanding the importance of the language and the culture that is most useful in classroom management.

The Facilitator is a key player in the Program and acts as a cultural and subject expert. The Facilitator offers coaching, feedback, co-construction team meetings, workshops and pedagogical approaches that enable teachers to develop new ways of relating to Maori students. The Effective Teaching Profile assists teachers in developing teaching strategies consistent with Maori cultural principles. Research monitored the impact on student achievement using multiple indicators based on quantitative and qualitative measures. The results showed significant
improvements in teacher effectiveness and student gains in literacy, numeracy and especially among lower achieving students.

The research of Te Kotahitanga is a longitudinal, Indigenous lead study, designed to use culturally responsive education to raise student achievement in a mainstream school system in a national accountability framework. Most research determines that a teacher impacts student achievement at a rate of 33%. This study focuses on teacher competence. Bishop and his colleagues have proved that teacher competence can be improved and that teacher performance impacts student achievement.

“The Te Kotahitanga professional development model links culturally relevant, relationship-based classroom pedagogy with a site-based process for working with teachers in the classroom. Implementing Effective Teaching Profile operationalizes the project’s culturally responsive pedagogy of relations to establish a learning context that is responsive to the culture of the child and means that learners can bring who they are to the classroom in complete safety and where their knowledge is acceptable and legitimate.” (Meyer, Penetito, Hynds, Savage, Hindle and Sleeter, 2010)

In an early development phase of the project, kaupapa Maori or storytelling was used to give voice to students, teachers, parents, family, Principals on the things that shaped Maori student achievement. They found that teachers believed the educational challenges experienced by Maori students were related to deficiencies in the students, limited language usage and in their cultural backgrounds. Student stories told of negative classroom experiences, their relationships with teachers and feeling excluded.

In Phase One of the project centered around 11 teachers in four schools and focused on Grades 9 and 10 students. The second phase of the project offered professional development to all staff in these schools. In Phase 3, another 12 schools were added. Phase 4 in 2006, 21 more schools joined the project. Participation was voluntary.

By 2004-2007, Te Kotahitanga was brought to 33 secondary schools in order to develop culturally responsive pedagogy designed to promote Maori achievement based on the Effective Teaching Profile.

An evaluation team visited 22 of the schools in 2008 to observe classrooms and interview stakeholders, review student achievement data and read reports. Their findings were and used to modify the program in 2009 by the Ministry of Education in partnership with the University of Waikato Te Kotahitanga team.

In 2010, the fifth phase of the program was brought to 17 new secondary schools. The new phase of the project focused on school leadership and professional
development of teachers as well as student achievement outcomes to improve teaching practice.

Bishop and his colleagues believed that the answers for Maori achievement lay outside of the theories, institutions and assessment of Pakehu (European based nationality) and somewhere in the ancient knowledge of the Maori culture, the knowing, the being, the land, the sea, and alternate pedagogies were waiting to emerge.

The Summary Report (Meyer, Penetito, Hynds, Savage, Hindle and Sleeter, 2010) of the evaluation of Te Kotahitanga pointed to the majority of teachers and educational leadership in the schools and Boards being overwhelmingly positive about the professional development model for improving classroom teaching and learning for Maori students.

Key Findings:

How well and in what ways does Te Kotahitanga work towards the goal of improving Maori student achievement?

Teacher Comments:

- Facilitators were on site to assist teachers with Maori content and pedagogy, assisted by observing in classrooms and offering guidance to teachers; they are critical to the success of Te Kotahitanga as experts; they are subject matter experts related to culturally responsive pedagogy
- Teachers were enthusiastic about the feedback they received towards improving their teaching and reflective practice
- Co-construction meetings among the team were working well
- School leaders affirmed enhanced relationships with and expectations for Maori students
- Teachers reported valuing relationship based pedagogies reporting enhanced outcomes for all students
- Teachers reported changes in their own beliefs, increased job satisfaction, motivation and empowerment
- Teachers reported increased valuing of Maori students’ language and cultural knowledge, a shift to student focused classrooms, improved assessment practices, more use of group work and cooperative learning
- Teachers acknowledged the importance of Maori identity as integral to promoting Maori student achievement; teachers expressed high expectations for Maori learners; they reported changed relationships, better rapport with Maori students and new attitudes toward Maori learners

Maori Student Comments:
• Maori students were proud of their culture, identity and language
• In most schools, they were able to be Maori as learners and noted the places that helped them be Maori such as the Marae, Maori teachers, Te Kotahitanga room
• Students were pleased that teachers valued them as learners and established positive relationships with them
• Families reported that their children felt positive about school

Critical Factors in Supporting Teacher Efficacy:

• Role of the Facilitator is key to Maori student achievement and should evolve into a permanent senior teacher leadership role
• Individual expert cultural advice to teachers and support for co-construction teams
• Training and ongoing support of the University of Waikato research team
• High implementation of the Effective Teacher Profile yielded positive results for Maori student achievement and teacher effectiveness; the model should evolve into senior subject areas
• Access to student data is needed on a regular basis for planning
• Shadow coaching should be in place to assist teachers with additional work in subject specific areas to produce lessons that use culturally responsive pedagogies
• Professional development must be sustained over time and focus on specific instructional strategies or content, be a collaborative effort with a team of teachers
• Peer coaching is a key strategy linked to improved student learning
• Te Kotahitanga is grounded on the voices of Maori students who identified their relationship with the teacher was at the centre of their success
• The Effective Teaching Profile came from Maori students comments on their needs

Outcomes:

• Data showed large increases in the numbers of students enrolled in Year 11
• Maori students attaining National Certificate of Educational Achievement (NCEA) Level 1 in Year 11 at Te Kotahitanga schools showed an increase of 16.4% in 2006 for Maori students, or a 50% increase over 2005 levels of attainment
• Attendance improved, suspensions decreased
• Qualitative data shows Te Kotahitanga is having a positive impact on Maori student achievement although not yet in all areas
• Maori students at Te Kotahitanga schools out-performed their peers in the comparison schools in Maths, Science and Physics
• Percentage of students gaining university entrance rose by 6%
As teachers became more proficient in their use of ETP, the Maori students improved in their literacy and numeracy.

Teachers are seeing congruency of TK with other professional development initiatives in their respective subject areas.

More work needs to be done to ensure TK impacts school policies and practices and is not just a classroom level support system so that monocultural Euro practices do not continue to dominate the school but true biculturalism with Maori culture can flourish.

Culturally responsive schools extend participation to family and community and this needs to be worked on.

Data collection is key to informing reports on student achievement so proper management systems need to be put in place to collect such information in a timely manner for accurate program planning.

Principals and Boards of Education were committed and enthusiastic to participate in TK.

An increase of 250% in the enrolment of Maori in Year 11 from 2005 to 2008 in Te Kotahitanga schools.

Parents, Facilitators, Teachers Principals, reported increases in school attendance, participation, motivation, and engagement in the classroom.

The work of Bishop, Berryman, Powell and Teddy (Ministry of Education, New Zealand, 2007) produced a review of Te Kotahitanga, a teacher education program dedicated to a whole school approach and aligned with the goal of improving the educational achievement of Maori students in mainstream education. They offer a very useful profile of the culturally effective and responsive teacher that is useful for reference purposes:

**Culturally Effective and Responsive Teaching Profile**

(From Appendix One of Te Kotahitanga, *Improving the Educational Achievement of Maori Students in Mainstream Education*, Phase 2: Towards a Whole School Approach, Ministry of Education, New Zealand, 2007)

Effective teachers of Maori students create a culturally appropriate and responsive context for learning in their classroom.

In doing so, they demonstrate the following **understandings**:

a) they positively and vehemently reject deficit theorizing as a means of explaining Maori students' educational achievement levels (and professional development projects need to ensure that this happens); and

b) teachers know and understand how to bring about change in Maori students' educational achievement and are professionally committed to doing so (and professional development projects need to ensure that this happens);
In the following **observable way:**

1. **Manaakitanga:** They care for the students as culturally-located human beings above all else.

   *(Mana refers to authority and aki, the task of urging some one to act. It refers to the task of building and nurturing a supportive and loving environment.)*

2. **Mana motuhake:** They care for the performance of their students.

   *(In modern times mana has taken on various meanings such as legitimation and authority and can also relate to an individual’s or a group’s ability to participate at the local and global level. Mana motuhake involves the development of personal or group identity and independence.)*

3. **Nga turanga takitahi me nga mana wharehaere:** They are able to create a secure, well managed learning environment.

   *(Nga turanga takitahi me nga mana wharehaere: involves specific individual roles and responsibilities that are required in order to achieve individual and group outcomes)*

4. **Wananga:** They are able to engage in effective teaching interactions with Maori students as Maori.

   *(As well as being known as Maori centres of learning wananga as a learning forum involves a rich and dynamic sharing of knowledge. With this exchange of views, ideas are given life and spirit through dialogue, debate and careful consideration in order to reshape and accommodate new knowledge.)*

5. **Ako:** They can use strategies that promote effective teaching interactions and relationships with their learners.

   *(Ako also means to learn as well as to teach. It is both the acquisition of knowledge and the processing and imparting of knowledge. More importantly, ako is a teaching-learning practice that is culturally specific and appropriate to Maori pedagogy.)*

6. **Kotahitanga:** They promote, monitor and reflect on outcomes that in turn lead to improvements in educational achievement for Maori students.

   *(Kotahitanga is a collaborative response towards a commonly held vision, goal or other such purpose or outcome.)*
In "Listening to Culture", Angus Macfarlane of the University of Waikato discusses the over-representation of Maori students to special education, the higher drop out rates and lower achievement rates compared to students in the mainstream who are not Maori. He cites community partnerships as key to developing relationships in schools to bring the context of Maori culture and language as integral elements for classroom management.

The Hikairo Rationale (Macfarlane, 1997) offers an approach to behaviour management that brings education into culture. Macfarlane offers the rationale as part of culturally responsive schooling that grew out of observations during a study at Awhina High School in Rotorua, a school for students with deep behavioural issues.

The name originates from the speech of Chief Hikairo in 1823 in encounters on Mokoia Island and subsequent peace negotiations. The Chief spoke with calmness, assurance, sincerity, and powerful messaging that his attitude brought a fundamental change of behavior. From his inspirational manner and Maori metaphors, the Hikairo concept was taken to apply to a classroom environment.

**Hikairo Rationale**

1. **Huakina Mai (Opening Doorways)**

   In the early stages of relationship, the teacher gets to know the students and the students become accustomed to the expectations of the teacher. Time before class beings to share feelings or events of the day or the experiences of the past evening give the teacher time to assess the emotional state of the students. Behavioural problems among students are usually the result of emotional pain. The teacher and students develop a set or rules or a contract to describe how they will treat each other.

2. **Ihi (Assertiveness)**

   Assertiveness enables the speaker to stand up for themselves, express feelings comfortably and exercise their personal rights. In the Maori world of the marae, orators excel in delivering messages of in the right style of communication as part of Maori protocol. Teachers learn to see the emotion in others and respond to the needs.

3. **Kotahitanga (Unity)**

   Consensus achieved through discussion enables differences to be aired, given due respect and conclusions reached by the group. Students, teachers and families can all work together to agree on classroom management norms.
4. **Awhinatia (The Helping Process-Interventions)**

Teachers provide feedback that will help Maori students with their self-esteem. The way that students feel about themselves affects how they interact with the teachers and their peers. The feedback must be offered in a culturally responsive manner.

5. **Runga I te Manaaki (Pastoral Care)**

Student experiences with trauma and failure may contribute to serious behaviour issues in the classroom. Healing and caring can begin in the family and be reinforced in the classroom family of relationships as an older man and older woman model ways of behaving based on fairness, integrity and inclusion.


The Individualized Education Plan helps identify learning needs that can be cooperatively addressed by teachers, other professionals and family members.

The Hui is a traditionally organized meeting of Maori with its own set of protocols. The IEP can be developed within this setting as a collaboration of individuals as family who can come together to celebrate a new direction in the life of the student.

7. **Oranga (A Vision of Well Being)**

In traditional Maori culture, negative behavior is viewed as destructive to the individual and to the family. Maori beliefs maintain that a person's well-being is a journey along four pathways of success:

- Giving and receiving love
- Achieving a sense of personal worth or accomplishment individually and in the eyes of the community
- Having fun
- Becoming self-disciplined

**BEST PRACTICES IN SPECIAL EDUCATION IN AOTEAROA NEW ZEALAND**

Awhina Secondary School

Students with deep behavioral and emotional challenges attend Awhina high school in Rotorua because it has been identified as a school modeling good practice in the management of behaviors of at risk adolescents. Maori students accounted for 90% of the enrolments in the 10 year life of the program. The large number of Maori students meant that the program would be reflective of Maori culture and values.
Each morning an assembly (hui) started the day with a detailed explanation of the day’s events. Math and the sciences were part of the morning study and students could work in small groups or individually. Before a group lunch, a prayer (karakia) was offered and recited by all students and staff. After lunch came reading with a choice of sports or cultural activities. The day closed with a hui. Staff were supported in their instructional planning by diagnosis, learning prescriptions, and student evaluations. Teachers knew the students well and were able to relate to them in understanding their skill levels, learning styles and interests.

School climate was an important part of the construct. Teachers were good role models in their tone of voice, authentic empathy and respect for students, appearance, moral values and appreciation for others.

The school building reflected Maori culture in its design and artwork by displaying students work, plaques in the memory of Elders and a lattice work panel featuring a marae as the heart of the community.

Awhina High School made a 3 day visit to a marae part of the school calendar to focus on the values of caring, acceptance and unity. The visit was intended to imprint the sacred values of proper behavior on the students so they would live them at home and in the school experience. The visit was deemed so important to embed the values of the Maori not only in the curriculum but also in classroom management for a truly authentic learning environment for Maori.

Macfarlane, University of Waikato, studied the Awhina High School and found the programs, “...reduced attendance problems, led to improved student-teacher relationships, provided a proactive framework for the delivery of education to disaffected students. The programs also changed students’ perceptions of authority. This change was facilitated through contact with people who exercised authority rationally, and who valued what others said or did.” (Macfarlane, 2000)

In addition, “the students responses also showed that educational experiences at Awhina High School helped to rekindle young people’s interest in education and gave them the opportunity to complete their compulsory schooling either by returning to the mainstream or remaining at Awhina High School. The educational context helped many of them to move toward their aspirations, to raise their self-esteem, and to steer clear of troublesome situations." (Macfarlane, 2000)

Essentially the program had the ability to turn around the “whakama” (despair or humility) experience by reflecting human values of respect and empathy within a paradigm of Maori values and ways in a culturally responsive school environment.

Conclusion:
The many unique features of culturally responsive schooling in the United States, Australia and New Zealand provide Canada with a lens that post-colonial Indigenous Nations across the globe are moving in the direction of self-determination, Nation building and affirming their jurisdiction over education for their people. They are utilizing language revitalization and cultural renewal as the foundational elements for building new institutions, informing philosophy and methodologies and setting new development goals.

The post colonial movement features reconciliation as a new relationship between Indigenous Nations and governments of the day with a hope of forging harmonious futures in diverse and globalized societies.

Indigenous directions in education are shared goals across the planet. In planning for educational reforms, an international Think Tank of the best minds bringing current empirical evidence based research to the table for cross pollination of outstanding practices is needed. Such a meeting would offer the opportunity for countries to share the wealth of knowledge, avoid duplication of research and form the building blocks of a new paradigm in Indigenous education that would serve the needs of all. The deficit model is dead along with government institutions that have not merged with current thought and research.

It is time to confront the racism and power differentials entrenched in the school system and deeply embedded in epistemic and ontological assumptions about teaching and learning, curriculum, classroom management, policies and assessment.

We are standing now inside the gateway of a new era where the very essence of Indigenerity is being called to lead innovation in the world and in the education of those most precious to us. Those policies, governments and institutions of old times cannot withstand the strength of a revitalization process that serves not only Indigenous peoples but peoples of the world. We choose to be leaders and innovators for the best possible future for our children and the planet.

The Relationship of Culture To Academic Achievement For Indigenous Learners

Culturally Responsive Education: A Quiet Revolution Coming of Age

The past forty years have born witness to an evolutionary development in education called culturally responsive education that has now taken its place as a feature of major importance contributing to the academic success of Indigenous learners in the elementary and secondary levels of education in Canada. From its infancy of small and sometimes isolated programs, born from a belief in the validity of ancient
wisdom, the beauty of the heritage language and love for a way of life in Ancestral homelands, emerged a dynamic way of educating Indigenous children and youth.

Culturally responsive epistemologies and methodologies have been designed to raise achievement levels, create equitable learning environments, and increase intrinsic motivation. The relationship of ethnicity, privilege and power are interconnected and they have been used in the past for subjugation of peoples.

Today the elements of transformational education within a paradigm of culture and language are closely linked to self-determination and Nation building. Culturally responsive education (CRE) is a way of bringing students, school and community relationships into a learning community of shared values and educational goals for more equitable educational outcomes for all students. When educators connect to the culture and community of their students, relationships form that enhance student performance. Teachers are challenged to be pedagogically informed and be able to offer multiple epistemologies to tailor instruction to the learners. CRE’s success is dependent on sound theory of Indigenous learning and exploring principles of good pedagogy within the context of culture and community. In the face of documented Indigenous disadvantage in education, research that offers effective and responsive alternatives and exemplary practice must be explored with a view to testing, trials, demonstrations and pilots that take inquiry into practice.

Sergiovanni (1994) states that, “educators need to approach the practice of teaching as a moral craft and a cultural obligation—an approach that effectively brings into play the heart, the head, and the hand.”

Macfarlane (2012) asserts that, “The heart is about having a philosophy and therefore incorporates beliefs, values and vision. The head involves personal or cognitive theory. The hand is about practices—the skills, strategies and decisions that are concrete and emphatic. Each without the other two results in vulnerability; each with the other two signals authority.”

Culturally Responsive and Relational Education: The Soul of Sovereignty

According to McKinley and Brayboy in the article, “Culturally Responsive Schooling for Indigenous Youth” (2008), “The research is quite clear: there is no evidence that the assimilative model improves academic success; there is growing evidence that the culturally responsive model does, in fact, improve academic success for American Indian/Alaska Native children. Importantly, we have found no evidence in Indian Country that parent and communities do not want their children to be able to read and write or do math, science, etc. Quite the contrary, these communities are keenly aware of this need and are engaged in this process—but they insist (rightly, in our minds) that children’s learning to ‘do’ school should not be an assimilative process; rather, it should happen by engaging culture. Indeed, this education continues to be
framed and lived within a framework of where larger assimilative forces and local, Indigenous forces are engaging in a “battle for power.” (p.1)

First Nations believe that academic performance is inextricably tied to an Education experience that is firmly grounded in the context of culture and language and founded on history, spiritual beliefs, songs, ceremonies, the land or place of origin, art, music, oratory, contemporary community customs and Nation building for First Nations citizenship. The cultural context builds the consciousness of the child and sets in place cognitive processes for learning and adaptability for a First Nations citizen. Education builds citizens for a civil society constructed on sovereignty with a love for the land and the way of life practiced on that land for millennia.

The commonly held belief is that academic performance for First Nations students depends on developing the whole child with social and emotional literacy, self-esteem based on identity development, cognitive excellence, linguistic fluency, spiritual maturity, and optimal physical development.

A community generated, comprehensive, integrated approach to educating the whole child to become a healthy, contributing member of his/her Nation and society in general, with a love of lifelong learning is the visionary goal of First Nations education and one generally supported across the country among the diverse Indigenous Nations throughout Canada. Service to one’s people has always been a prime factor in educating First Nations citizenry.

Culturally responsive education for Indigenous students is a complex innovation requiring systemic change throughout the entire school system. This kind of innovation can be a central pillar for Nation building and Self Government if the Nation accepts the challenge of building its citizens with the necessary capacity to be fully fluent, culturally grounded in history, ceremony and customs with the necessary modern skills and abilities to contribute in the larger social framework of the country.

Education is at the heart of democracy in the truest sense, as understood by Indigenous Nations on this continent long before the arrival of settlers. Its role today has evolved to building Indigenous citizens for the 21st century strong in traditional identity and values, culturally literate, academically sound, with intrinsic social and emotional maturity to contribute to the development goals of the Nation whether in urban locations or in First Nations communities. To accomplish this goal, education must be viewed as a process of human development reflective of the cultural and linguistic framework of Indigenous Nations. As we look to the future, we understand how schools are a vehicle for the transmission of culture and therefore, our challenge is to ensure that education is integrated into culture to be truly authentic.
A number of scholars and Indigenous education experts have advocated for the use of culturally responsive education as promising strategy to increase Indigenous student achievement in the US. (Klump and McNeir, 2005; Dick, Estell and McCarty, 1994; Beaulieu, 2006; Demmert, McCardle, Mele-McCarthy and Leos, 2006; Demmert, Grismer and Towner, 2006; Kana‘iaupuni, Ledward, Jensen, 2010; Kawakami and Aton, 2001)

Jerome Bruner, noted educational psychologist and a pioneer in cognitive development states “...culture shapes mind...it provides us with the tool kit by which we construct not only our worlds but our very conceptions of our selves and our powers.” Bruner goes on to say that “...you cannot understand mental activity unless you take into account the cultural setting and its resources, the very things that give mind it shape and scope. Learning, remembering, talking, imagining: all of them made possible by participating in a culture.” (Bruner, 1996)

For some time, stakeholders have expressed concern regarding the significant achievement gap in between First Nations and non-First Nations students in this country. Gaps are evident among both cultural groups and Indigenous Nations in the Americas who have not migrated here with the intent of assimilating such as African Americans as well as Indigenous Nations.

Theories have emerged to explain the gaps such as the cultural deficit theory that attributes academic weakness to student learning deficiencies or the cultural norms of non-compliance in the community or not valuing education. The cultural difference theory shifts the focus to incongruity between home and school cultures, values and language usage. Culturally responsive education places culture at the heart of learning and school environment to empower learners and their communities and is the soul of sovereignty.

What follows is a discussion of the nature of culturally responsive relational schooling as it appears in classroom management, pedagogy, curriculum, assessment, and in policies of school divisions and School Boards and in community engagement. The research represents the first look at the field of culturally responsive relational education and is neither exhaustive nor complete. Rather it is an initial attempt to gather information for strategic planning from the exemplary work of dedicated educators working tirelessly in the classrooms of Indigenous children in the US, Canada, New Zealand and Australia with the hope that inspiration and innovation will guide us on this journey together for the best future for our children.

What is culturally responsive education?

There are many terms to describe culturally relevant education such as cultural congruence, culturally sensitive, culturally inclusive, cultural synchronization, cultural compatibility or culturally appropriate. The most basic notion is that
Indigenous language and culture are planned programs to improve educational outcomes for First Nations students both in the classroom and in the school environment.

Preference for the term culturally responsive education seems to be the norm in the literature since it implies a dynamic and evolutionary description of how First Nations education is shaped by culture, language, traditions and identity in a vigorous paradigm embracing change.

New research in education has provided fresh initiatives for examining learning and teaching in new paradigms other than conventional assimilative models that have failed to increase Indigenous student academic performance.

Demmert and Towner (2003) discuss three theories closely tied to cultural based education and academic performance:

1. **Cognitive Theory**: Utilizing prior knowledge in a student's long term memory and integrate into new knowledge

2. **Cultural Historical Activity Theory**: The socialization of infants is accomplished through language, culture and socialization within community. Language vocabularies are imprinted on the learner; cultural ways are integrated into the consciousness and promote cultural continuity. The cultural foundation of language and socialization activate a learner's tools for problem solving and adaptations. The elements of language, cognition, culture, community and socialization are keys to learning. Connectedness to community and culture is the platform for learning.

3. **Cultural Compatibility Theory**: The close alignment of school and community relationships and values contribute to reaching educational goals

Parts of all three theories can be useful when developing culturally based education. They are neither mutually exclusive nor competitive in nature.

Demmert and Towner (2003) provide a list of six features that describe a Culturally Based Education system:

1. Use of heritage languages whether bilingual or as a first or second language.

2. Pedagogy that builds on traditional cultural ways and values and adult child relationships as the starting point for teaching and sharing.

3. Pedagogy that utilizes teaching strategies congruent with traditional culture as well as contemporary knowledge systems.
4. Curriculum that is based on traditional culture recognizing the value of spirituality.

5. Participation in the school by the community both in the curriculum and in out of school activities.

6. Community cultural values permeate the school.

The design of a culturally based education program demands that the program be developed locally with communities or First Nations playing an active role in developing culturally based curricula and in delivering instruction.

Strong relationships between home and school are highly correlated with effective schooling and student achievement. (Cotton, 1995) Therefore, the appearance of CRE in one location of a First Nations school system may not look the same as that of a program elsewhere. Local knowledge, cultural customs and protocols, rich ceremonial life and language will differ and contribute to the uniqueness of programming everywhere.

The outstanding feature of culturally responsive education is that it is developed, by it very nature, locally by the school and its community partners. It has many faces and variations that suit local needs, cultural origins, linguistic family and community customs.

The work of the Alaska Native Knowledge Network (1998) is fundamental in providing standards in culturally responsive education that are established to affirm Indigenous epistemologies and sit alongside academic standards set by the school divisions.

ANKN suggest a list of standards for students involved in culturally responsive education:

- Culturally knowledgeable students are well grounded in the cultural heritage and traditions of their community
- Culturally knowledgeable students are able to build on the knowledge and skills of the local cultural community as a foundation from which to achieve personal and academic success throughout life
- Culturally knowledgeable students are able to actively participate in various cultural environments
- Culturally knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning
- Culturally knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all elements in the world around them.
The factors that contribute to the academic failure or underachievement of Indigenous children are those counted within the deficit paradigm that is well known to all in the field. School needs to be counted among those causal factors, while at the same time, school can be part of the grander solution. Deficits imply weakness. It is time to move into the field of strength-based paradigms that can change the life trajectory of a child from risk to resilience. The beliefs of adults planning for the development of children are key to focusing on the assets of children that can empower them, their families and their First Nations.

Education is a pillar of sovereignty through building the hearts and minds of First Nations youngest citizens with ancestral imprints of language fluency and traditional Indigenous knowledge that shapes their hearts, minds, bodies and spirits. The imprint connects the child to the homelands of the Ancestors and creates a tie to the natural world and Spirit World that is eternal. Those children who have been taught these ways will stand as the warriors of the new millennium to guard the land and ensure the transmission of all that is sacred to future generations.

Evidence Based Results for the Efficacy of Culturally Based Education:

In terms of a rigorous research study that is evidence based showing the causal impact of culturally based education on student achievement, the work done by Tharp (1982) on, “The Effective Instruction of Comprehension: Results and Description of the Kamehameha Early Education Program” yields the strongest results.

The Kamehameha Early Education Program (KEEP) was designed in 1970 as a reading program for high risk of failure Hawaiian and Polynesian children that also included cultural content. Over time, the program changed to reading and comprehension with a culturally based pedagogy. The program was always continually improved by research on student outcomes. Culturally responsive language arts and mathematics lead to higher reading and math achievement among students in the program compared to those not in the program.

Qualitative information gathered included observation of behavioral categories, micro-ethnographic studies of sociolinguistic interactions in school activity sessions, ethnographic observations of teachers and students in school, quality control observations of teachers ensuring fidelity of program implementation and quantitative data collected from criterion referenced student assessment and student standardized tests.

Qualitative studies were also conducted of students in informal settings such as recess, after school, on buses and at home. This data enriched the understanding of social interaction and teaching/learning opportunities for the designers to incorporate into the pedagogy. The designers witnessed “talk story” and “ohana” or
relationships where small group discussions and mutual assistance in task completion in the classroom became the norm. Culture informed the teaching and learning partnership. Over the years, many innovations were tested, modified and refined and measured against student achievement on criterion-referenced tests. Program designers had to be sure that the most effective elements were present, that the culture based elements were delivered with fidelity, then the program was no longer a “best practice” but a comprehension/culture based program.

KEEP experimentation took place in the K-3 division in one classroom for each grade with a class size of 30 maximum. Genders were equally distributed and the cultural origin of the class was primarily Hawaiian at 75% with the remainder of the children being Samoan, Korean, Caucasian, Japanese, Portuguese and Pilipino. One quarter of the children came from middle class families and the rest from families receiving public assistance. The students were tested at normal intelligence at the end of kindergarten. Six cohort classes did not differ over the study period in composition.

The children spoke Hawaiian Creole English as their first language and Standard English as their second language.

KEEP contains six critical elements of success all of which are integrated with one another in a multi component complex program:

- Active instruction of comprehension
- Classroom organized into small groups
- Student motivation is maintained through positive interpersonal reinforcement
- Continuous monitoring and feedback of student performance data to teachers, consultants, trainers, program designers
- Individualized, diagnostic prescriptive instruction
- Quality control system ensuring fidelity of program implementation

The authors of this study report a sound academic curriculum, enriched training for teachers, full engagement by students and the high quality of the program environment. The success of KEEP is based on the delivery of a high standard curriculum in a culturally based relational context.

The authors attribute the excellence of KEEP to the comprehension focus and to the culturally based organization of teacher student interactions and the culturally based peer interaction in the independent learning centres.

The results of the evaluations on KEEP enabled the best of all innovations to be transportable to other Hawaiian classrooms from the demonstration lab classroom of KEEP.
KEEP has been studied extensively over many years and is among the most documented educational programs in history. Its’ success is predicated on years of investment by dedicated teachers and administrators, requiring funds and expertise to maintain.

Of all the learning models or research studies, KEEP research on how culture and language impact student achievement has the most validity and reliability. The National Academy of Sciences report for educational programs listed KEEP as the only available such study with true experimental design. (August and Hakuta, 1998)

Other studies are smaller in nature, focusing on a geographic area of First Nations or single First Nations or Tribes and Tribal Groups in the US. KEEP is the longitudinal study of student performance that best meets our needs for comprehensive practices in culturally responsive education, pedagogy, curriculum, language instruction, literacy, teacher preparation, evaluation and assessment tools, community participation and replication ideas.

The Report to the US Senate Committee on Indian Affairs in 2011 by Kamehameha Schools offers some very recent updates on the efficacy of culturally responsive education and its relationship to student academic performance. The report referenced in the presentation by Dr. Shawn Malia Kana’iupuni, Division Director is called, “Hawaiian Cultural Influences in Education,” a quantitative study that clearly notes the impact of culture-based education teaching strategies to student academic achievement and to their socio-emotional development. Interviews with 600 teachers, 2,969 students in Grades 7-10 and 2,264 parents were held at 62 charter/public/Hawaiian immersion programs at schools/private Kamehameha schools in 2005-2007. HCIE was the first large scale study of its kind with partners from Kamehameha Schools, the Hawaii Department of Education and the alliance of Hawaiian public charter schools. The team used student surveys, statistical data on reading and math achievement and information from teachers on culturally effective teaching practices. Hierarchical linear models were used to conduct multilevel statistical analyses of the data. The data set was able to link statistically culture based education to academic performance outcomes. Cultural relevance directly impacts student socio-emotional factors such as identity, self concept, community and family relationships, student engagement, achievement and behaviour.

Student outcomes were:

- Culturally based education positively impacts student socio-emotional well-being (identity, self-efficacy, social relationships)
- Enhanced socio-emotional well-being positively affects math and reading test scores
• A statistically significant relationship between culturally based use and math and reading test scores most notably when teachers’ use of culture based strategies is supported by overall use of culture based strategies in the school.

Students whose teachers use culture based strategies:

• Reported higher Hawaiian cultural affiliation, civic engagement, school motivation, strong community ties
• Spent more time on homework every night
• Had high levels of trust with teachers and staff and a deep sense of belonging at school
• Feel that school is like a family
• Feel that teachers go out their way to help students

For Indigenous students, the sense of belonging at school is often the single most important indicator of educational success especially where generations before have been marginalized at school.

The statistics show that 87.9% of students whose teachers used culture based education indicated they expected to graduate from college compared to 73.5% of students whose teachers did not use culture based strategies. The current data from Hawaiian charter schools show 10% higher graduation rates than regular public schools.

The findings of the research have policy implications:

• Culture based pedagogy is a best practice showing relevance and rigor
• Teacher education programs must include culture based understandings
• Funding from government should be directed at schools using CBE in a culture rich environment
• Pay compensation incentives for high CBE teachers
• Promote CBE at the school administration level and in the public system
• Legislative recommendations for states to require equitable operating facilities for culture and language based charter schools supporting the unique cultures and languages of Indigenous peoples
• Kamehameha Schools supported 5 Hawaiian language immersion schools seeking WASC accreditation and they will now be the first Hawaiian language schools to be accredited
• An Indigenous Education Rubric to measure CBE was developed to assess context, content, language, family/community and data/accountability with a continuum ranging from known to enacting. (Kana’iaupuni, Kawai’ae’a, 2009)
• CBE enhances relevance and relationships at school and while supporting positive academic outcomes
• New empirical data is revealed through the HCIE study connecting teachers’ use of CBE strategies to student academic achievement and socio-emotional outcomes indicating a positive impact

• The rich data set defines CBE, provides a model of it in schools, and offers quantitative data that can be used further to examine questions about schools, teachers, parents and students

The authors of the study are careful to note that it is a comprehensive picture of the results of CBE but that the study cannot be considered to be longitudinal, exhaustive, causal or the final statement.

The Preliminary Working Group findings report, “Na Lau Lama Culture Based Education” is part of a larger study called Na Lau Lama Community Report, The Statewide Collaboration to Improve Outcomes for Hawaiian Students. This initial report by the study group offers the successful practices for culturally responsive education that have been utilized in Hawaii:

• Use the resources of the communities and places in which our haumana live for providing context to learning

• Incorporate community service that empowers haumana to make a difference in their communities-service learning encourages students to make meaningful connections to an authentic learning experience and empowers self-identity

• Create opportunities for haumana to learn by doing-students apply what they learn so they can understand concepts completely in a lived experience-align culture based education to other “real world” opportunities such as career development to motivate students to invest in their futures

• Integrate Hawaii content and performance standards and Na Honua Mauli Ola Guidelines into culture based curriculum

• Rigor is a critical component of culture based learning experiences to set high expectations for students and communicate clear learning objectives(p.1)

The Working Group (p.3) offered recommendations to teachers, government, University of Hawaii and state legislators:

• Start at the youngest ages to develop aloha in pre-K and K

• Nurture teachers across all grade levels to utilize culture based curricula

• Identify resources in each community that can enhance curricula in all areas
• Collaborate with local Hawaiian communities to provide professional development opportunities for teachers to help them connect to Hawaiian culture for themselves and their students

• Develop proactive parent involvement programs to allow parents to be advocates for their children’s education in meaningful ways

• Link culture based academic education from elementary to high school and vocational opportunities

• Implement mentorship programs at all grade levels for learners and teachers
1. Focus on the haumāna/student
The focus begins with the needs of the haumāna or student. Research and experience teaches us that each haumāna learns at different times, in different ways and at different rates. Culture-based education utilizes an assortment of tools and educational strategies focused on developing each student’s own innate gifts and abilities. Practical experience demonstrates that students learn best by doing. When involved in learning something of interest, students come to understand concepts more fully, remember them longer after the experience, and develop confidence in their ability to find things out and to understand the subject matter.

2. Context/honua
Context is the second critical component in culture-based education. This is the factor that makes learning useful, applicable and relevant. Context is defined as family, school, community, ahupua’a, island and special culturally-significant places, such as wahi pana and pua’ahanua. In Hawaiian, we call this context learning the houma. Context is also about the internal and external components that contribute to learning, which includes the inter- and intra-generational relationships that are key in defining our place in our culture and who we are as a people.

3. Content/‘aha
Content is the third major component of the culture-based education model. Content is knowledge, both cultural and academic, as well as the language and values of the culture as they are reflected in day-to-day living. In Hawaiian, this is called ‘aha, the reciprocal exchange of knowledge. Cultural content includes the protocols and practices that are necessary to understand how each haumāna relates to their honua (family, community, world, or context, of their learning).

4. Spirituality
Culture-based education requires the full integration of a fourth factor, spirituality. Spirituality is the critical fourth element and continues to be a source of empowerment that transcends the three essential ingredients of the triangle discussed above. The ‘ana’o, or koa leaf, is symbolic of the importance of spirituality in Hawaiian culture and to the Hawaiian people. The ways in which haumāna, along with ‘aha content and honua context, are embraced by the spiritual also are common elements that are reflected in all indigenous knowledge.

From: Na Lau Culture Based Education, Preliminary Working Group Findings (p.2)
A study in 1997 titled, “The Traditional Tribal Values of Ojibwa Parents and the School Performance of Their Children: An Exploratory Study” by Coggins, Williams and Radin, complied research on 19 Ojibwa families in a small, rural reservation looking at the relationship of parents’ holding traditional values and the academic achievement and social functioning of their children in elementary school. (1)

The results showed that “identification with more traditional American Indian values by mothers had a beneficial impact on their children’s academic and social performance in school. However, fathers’ level of holding traditional values was not significantly associated with children’s academic and social outcomes. Results suggest that culture should be viewed as a tool, not an obstacle, in enhancing the school performance of American Indian children.” (p.1)

This research was part of a larger study that also included the impact of father and grandfather childrearing on their grandchildren’s academic and social performance in elementary school.

Study results showed the positive relationship between mothers’ level of holding traditional values and their children’s academic and social competence in school.

“The findings of this study suggest that American Indian cultural revitalization programs are important and should be integrated into education and family support systems. Furthermore, additional research in the area of American Indian values and school performance is essential. If the results of the Bay Mills study are replicated in larger samples of Ojibwa families and in many other American Indian communities perhaps culture will come to be viewed as a tool, not an obstacle, in enhancing the school performance of American Indian children.” (p. 10)


A study by Whitbeck, Hoyt, Stubben and LaFromboise in 2001, titled, “Traditional Culture and Academic Success Among American Indian Children in the Upper Midwest, shows the important factors affecting school success for a sample of 196 American Indian children from three reservations in the upper Midwest of the US for grades 5 to 8. The regression model utilized age, gender, family structure, parent occupation and income, maternal warmth, extracurricular activities, enculturation and self-esteem. (2)

The results show that traditional culture positively affects the academic performance of the children. The outcomes of the study are presented in terms of resiliency effects of enculturation for American Indian children. Traditional culture
is defined as involvement in traditional activities, identification with American Indian culture and involvement in and importance of traditional spirituality.

In 1986, Huffman, Sill and Brokenleg (3) conducted a study called, “College Achievement Among Sioux and White South Dakota Students” from the University of South Dakota and Black Hills State College to examine factors relating to college achievement. All independent variables included:

- family income
- educational level of the parents
- high school GPA
- participation in the college environment
- parents’ educational aspirations
- students’ educational aspirations

The variable used with the sample included a three part index on traditionalism.

i) Self-reported knowledge of an American Indian language
ii) Participation in American Indian ceremonies while in college
iii) Identification of a reservation as the place of permanent home residence

A positive response to two or three of the questions then determined that the American Indian student had a traditional background.


Huffman, Sill and Brokenleg compared social, cultural and aspirational factors related to post-secondary achievement among Sioux and White students. The traditional and non-traditional category was applied to the Sioux students. For White students, parental expectations and encouragement to attend College and high school GPA were related to higher educational achievement. "However, the only predictor of academic success for the Sioux students was their retention of Native cultural traditions." (p.2)

“Success in college for Sioux students, on the other hand, seems to be related more to their cultural identity. The crucial contributing factor for the likelihood of college achievement for the Sioux students in this study is the retention of their traditional cultural identity and heritage. Indeed, it is likely that this factor is instrumental in facilitating a strong sense of personal self-identity and confidence in these students.
Thus, traditional Sioux students seem to have a better chance for achievement in college than their non-traditional counterparts.

The Vadas (1995) study, “Assessing the Relationship Between Academic Performance and Attachment to Navajo Culture,” selected as an abstract from the ERIC Educational Resources Information Center states, “A survey of 185 Navajo students in grades 7 and 11 examined the relationship between their identification with attributes of traditional Navajo culture and their achievement level on standardized tests. (4)

Results suggest that student identification with Navajo language, culture and tradition helps develop student self-esteem and cultural identity in ways that promote academic success.


In the study by Lino (2010), “The Relationship of a Culturally Relevant and Responsive Learning Environment to Achievement Motivation for Native Hawaiian Secondary School Students”, there is evidence of a positive impact on the motivation and achievement levels of students when learning environments are responsive to the culture and heritage of the students.

The ERIC abstract (5) states:

“As data depict, Native Hawaiian public school students consistently rank among the lowest of all ethnic groups by nearly every measure of academic engagement and success (Kana’laupuni and Ishibashi, 2003). As is common with many children of Indigenous ancestry, teaching methodologies, pedagogical strategies and structures of mainstream conventional educational systems have generally not served Native Hawaiian children satisfactorily. (Bielenburg, 2000; Kana’laupuni, Malone and Ishibashi, 2005) Native Hawaiian students are perceived by their peers as poor academic performers, mainly due to their lack of effort and apathetic attitude toward education in general. (Kana’laupuni and Ishibashi, 2003) Native American educator Cornel Pewewardy (1993) maintains that one of the reasons why Native American children experience difficulty in schools is because mainstream educators, in trying to address Indigenous minority students’ needs, have traditionally attempted to insert culture into their education, as opposed to inserting education into their culture. (as cited in Ladson-Billings, 1995) “

The study examines the relationship of a culturally relevant and responsive learning environment to achievement motivation for Native Hawaiian secondary students (grades 6-12). It investigates whether elements of cultural connectedness not only help Native Hawaiian secondary students increase academic achievement, but also positively affect their level of achievement motivation.” (6)
5. ERIC documents are citations identified by an ED number. ERIC resource collection: go to: http://www.ed.gov/BASISDB/EROD/eric/SF.


This particular study is qualitative in nature and correlates the six independent variables of cultural connectedness including:

- Cultural attachment
- Hawaiian language
- Connection to the land (aina)
- Connection to family (ohana)
- Cultural practices
- Cultural issues to the dependent variable of achievement motivation

Secondary students representing four school types including:

1. Public Hawaiian language immersion
2. Charter Hawaiian language immersion
3. Charter Hawaiian focused
4. Private schools

The relationship of cultural connectedness to achievement motivation is examined and compared between each school type, by grade level and also by gender. The findings of this study discuss effective cultural learning structures that impact learning as well as motivation for Native Hawaiian secondary students in a variety of school settings.


Four elements were present that initiated and sustained change:

- Local Administrators supporting efforts to changing the schools
- Local community leaders who support change and align themselves with schools that support change
- Relationship between Native and non-Native educators providing mutual support and discourse
- Financial resources to support culturally based education
This case study in particular is a critical one for study since it brings to the forefront some evidence of the role of the community in supporting culture and language and contributing to academic achievement for their students.

An intensive study by Klump and McNeir in 2005 offers four US case studies of outstanding culturally responsive education of which two are located in Alaska, one on the Flathead Indian Reservation at the Salish Kootenai College and the final one Warren School under the Title VII Indian Education Program.

In *Russian Mission School in Alaska* integrates Indigenous knowledge with academic and cultural standards through experiential learning of traditional subsistence activities common in the community. Klump and McNeir report that the results of the program have shown increased enrolment rates, stronger connections between students, teachers and Elders, students are embracing their cultural heritage, crime in the community has gone down, subsistence activities have increased in the community.

*The Tululsak School* acquired a dog racing team as a learning tool to connect curriculum content to experiential learning. The dog team is integrated into all subject areas and the results have affected the social and interpersonal skills of the students. The school provides intensive cultural and language training for its teachers and training on pedagogy for English language learners. The turnover rate among teachers has dropped. Using the local resources to respond to local needs is a distinct feature of culturally responsive education.

The third case study at *Salish Kootenai College* provided session where Elders teach about culture and language to faculty members. The goal is to prepare faculty members with cultural competency so that they can translate this specialized knowledge into culturally based education in their classrooms.

The last case study of Klump and McNeir focused on the *Title VII Indian Education Program at Warren School* where they developed specialized culturally responsive curriculum and resources for teachers to use in their classrooms in every grade.

The National Indian Education Association has identified Zuni Public School District as showing success in implementing strategies to support higher levels of Indigenous student achievement.

Zuni Public School District in Zuni, New Mexico was founded in 1980 by Zuni Tribal members as the nation’s first Indigenous controlled independent public school system. There are 5 schools with about 1,500 students in the Pueblo. Zuni students are well informed in Zuni language and culture that is infused in subject areas throughout the curriculum. “As for its success,...for 2009, it attained adequate yearly progress (AYP) in reading and experienced a 94.8% jump in mathematics achievement.” Students attend fewer classes for longer periods on alternating days.
and this allowed the staff to address students’ learning needs and provide interventions. The past year has been spent on strengthening student relationships. (Issue Brief, Learning Point, 2009, p.6)

**Why use culturally responsive education in the classroom?**

The demographics of countries are changing with every passing decade as immigration brings peoples to our shores from the global family. Technology has now made it possible to connect worldwide with Indigenous Nations formerly closed to the public as they rebuilt their cultural traditions. Multiple epistemologies are needed to ensure that Indigenous students receive the training in cultural literacy not only within their own Nation but to enable them to move freely and with confidence among other Nations of the world.

Scholars have repeatedly suggested the multi-faceted lens with which Indigenous students see the world and understanding the code of the “Culture of Power” must be learned and negotiated to effectively move within one’s own traditional culture and the norms of mainstream cultures. (Klug and Whitfield, 2003; Delpit, 1988, 1995) The school has an important role in educating Indigenous students with this capacity. “This code switching results in Indigenous youth who are both academically and culturally prepared to succeed in the mainstream culture and in their tribal communities.” (Deyhle, 1995; Reyhner and Jacobs, 2002)

Education is culture based no matter where it is located. The culture that will dominate in the school to construct the reality of the minds of Indigenous citizens for the new millennium is the question. Education, as a pillar of sovereignty, is the gateway to a new philosophy of education, new methods of pedagogy, new curriculum, new evaluation tools, and new models of education in a frontier of infinite possibilities.

The classrooms, the schools, administration, policies, holiday schedules, pedagogy, curriculum, and teaching faculty should always reflect those whom they are teaching. Students should see in the education system the faces of those from their own cultural traditions who are role modeling, mentoring and guiding their development. Educators in the 21st century need to know multiple epistemologies for meeting the needs of their students.

Students come to school with differing learning styles and cultural practices for relationship building, communication, conflict resolution or participation with adults who directly affect teaching and learning.

When students see that the school offers a culturally responsive environment that honors how they see the world, how they understand knowledge, what they value in life, and how they make relationships within their particular cultural groups, there is a greater feeling among students that school is another home, a place of respect.
and comfort. Culturally responsive education has an impact on student achievement by creating an optimal learning environment.

Student achievement is affected by teaching in one’s learning style. Gilliland (1995) stated, “...students who are taught in their preferred learning style are said to demonstrate higher levels of student achievement.” Gilliland also comments that, “...although there are great individual differences, common patterns of thinking styles, learning styles and interests characterize students who share a common cultural background.” (p.52)

In 1989, More wrote about Native American learning styles and found five dimensions of learning to be global/analytic, verbal/imaginal, concrete/abstract, trial, error, feedback/reflective and modality. Butterfield (1994) noted that Indigenous youth typically show preferences for spatial, visual, mental images rather than verbal or word associations. (p.4)

Other descriptions of Indigenous learning styles also include descriptions such as seeing the global picture, applying knowledge to real world activities, reflective, collaborative, circular, holistic, experiential, hands on, visual, observation precedes performance, valuing learning that contributes to the greater good of family or community. (Cleary and Peacock, 1998; Hilberg and Tharp, 2002; More, 1989; Sparks, 2000, Gilliland, 1995; Swisher and Deyhle, 1989)

Related research also points to enhanced learning outcomes for Indigenous and non-Indigenous learners when Indigenous content is used in the curriculum and in the classroom. (Lipka and Adams, 2004; Lipka, Hogan et al., 2005; Lipka, Parmelee and Adams, 2005).

If Indigenous students come to school with different learning styles that impact teaching and learning and if we are to maximize the learning potential of Indigenous learners, then attention must be paid to creating the most comprehensive set of culturally responsive teaching strategies. We might better ask ourselves how teacher education at the pre-service and in-service levels might be reformed to accommodate the learning styles of Indigenous learners to increase student achievement levels.

Culturally responsive education assists in dealing with the unspoken word of racism in the school systems. The more we know of each other, the less we fear. In this century we must be known as the generations that sought to place everyone within the circle of life for the value of each life to be deemed important and treasured.

The extent of racism in the schools is also a subject for further inquiry. Racism occurs in the community as well as the schools but is manifest in the education system as:

- stereotyping
• paternalism
• violence and bullying
• biased materials
• negative assumptions or judgment
• low expectations
• blaming students instead of looking at systemic barriers to success
• inequitable use of resources to aid the student, or inequitable teacher guidance/help/mentor time for Indigenous students

Racism is subtle, sometimes unconscious. In the section on Culturally Responsive Pedagogy, there is set of questions for teachers to self-examine their own attitudes to the ethnic/racial background of their students in order to check for bias or stereotypical assumptions regarding their students’ capacity to achieve. (Prochnow and Macfarlane, 2008). Ladson-Billings in 2005 says, “I continue to have serious concerns about teachers willingness to unlearn racial codes and symbols and learn new ways of constructing and conceptualizing Blackness in general and African Americans in particular. Thus, the task is not so much how we teach students, but rather in how we construct them as students.” (p.147)

If teachers continue to see Indigenous students as “at risk” or deficient in reading or mathematics, then no program will turn around the dismal statistics in literacy and numeracy because we are really talking about human relationships not pedagogy. Early reading problems set a trajectory for emotional challenges throughout the school years that can lead to lower self-concept and depression in secondary school and beyond.

Educational reform is led by high quality research and so the examination of appropriate models is of primary importance. Studies of promising practices are necessary if research is to provide information on pedagogy, curriculum, assessment and positive learning environments. The “Culture Based Education and Its Relationship To Student Outcomes” report by Kana‘iaupuni and Jensen (2010) shows the research that lead to the development of a model for understanding relationships between culture based education and student outcomes. They assert that culturally based education grounded in language and culture encourage instruction and learning in a context that is relevant to students and “culture based educational strategies positively impact student outcomes.” (p.1)

The study looked at teachers using CRE in various types of schools and linked their instructional practices to students’ reported socio-emotional development and academic outcomes in math and reading. The research not only assisted in the development of a model but it also yielded quantitative data to look more deeply at schools, teachers, parents and students. The data showed clearly that cultural approaches strongly enhance relevance and relationships and support academic achievement.
Culturally responsive teaching is the development of new attitudes toward learners and a holistic framework that holds the values of culture and language within the curriculum and pedagogy. It is predicated on the belief that this body of knowledge of what is working for Indigenous students to improve educational outcomes is the result of multi-disciplinary studies in anthropology, sociology, linguistics, history and psychology. Now the challenge is to take the research and translate it into practice.

**Culture and Language Programs in the Schools: The Impact on Student Achievement**

The body of research is growing on the influence of Indigenous culture and language programs in the school and their impact on student achievement. The commonly held belief is that cultural knowledge is inseparable from language learning.

The studies show a decades long journey of Indigenous Nations working to recover or revitalize their languages and cultures through school programming. The goal has been consistent over time with a more recent focus on how language retention and fluency and a culturally responsive education system impacts Indigenous student success in school and in the pursuit of lifelong learning. Policy studies for many years have reported that community controlled educational reforms that promote language and culture can contribute to greater levels of student academic achievement levels.

In 1985, Kleinfield et al., studied 162 small rural schools in Alaska with under a 100 students in each one. He found that that the most successful ones had strong working relationships between the school and community.

In 1998 Mason looked at a First Nations school under local control for only three years and serving about 165 First Nations students in K-10. The study reviewed measures of student attitudes to school, their values and sources of enjoyment. It also reviewed records of academic testing (CTBS), attendance, suspensions or expulsions, drop-out rates and age grade deceleration. Under First Nations control the enrolment increased, the age grade deceleration was reduced by about 20% especially in the K-8 division, attendance improved and 34 older students, out of school for awhile, came back to finish. There are 23 recommendations for school success and suggestions for other research. (Mason, 1998)

The experimental research work yet to come among groups of schools or groups of First Nations sharing a common linguistic background and geographical area needs to be done to isolate the key factors contributing to student achievement and effectively naming those barriers or gaps faced by Indigenous students to their academic progress and ultimate success.

Generally the research provides strong evidence that when Indigenous cultures and languages are present in a culturally responsive school curriculum there is
“...improved academic performance, decreased drop out rates, improved school attendance rates, decreased clinical symptoms and improved personal behaviour.” (Demmert, 2001)

According to McKinley and Brayboy (2008), “there is a set of emerging studies that demonstrate that an infusion of language (where possible) and culture assists Indigenous children’s ability to read and write in English, do math and succeed in school.” (p. 1)

In summary,

Brayboy and Castagno (2008) confirms that, “...scholars have found that efforts at CRS for Indigenous youth result in students who have enhanced self-esteem (Agbo, 2004; Cleary and Peacock, 1998), develop healthy identity formation (Trujillo, Viri and Figueira, 2002), are more self directed and politically active (Garcia and Ahler, 1992), give more respect to tribal Elders (Agbo, 2004), have a positive influence in their tribal communities (Cleary and Peacock, 1998; Pewewardy, 1998; US Department of Education, 2001) exhibit more positive classroom behaviour and engagement (Cleary and Peacock, 1998; Lipka, 1990) and achieve academically at higher rates.” (Apthorp, D’Amato and Richardson, 2002; Demmert, 2001; Demmert and Towner, 2003; Klump and McNeir, 2005; Smith, Leake and Kamekona, 1998; Swisher and Tippeconnic, 1999; Taylor et al., 1991; Zwick and Miller, 1996)

**Linguistic and Cultural Congruence Between Classroom and Community**

In the US, the past three decades of research have found strong evidence that Indigenous language and cultural programs and student identification with these programs can increase academic performance, improve retention, decrease drop out rates, decrease mental health issues, and improve behaviour. (Stiles, 1997; Yagi, 1985; Lipka and McCarty, 1994; Smith, Leake and Kamekona, 1998)

Bilingual and immersion programs suggest important benefits to educating students in the language of their Nation and in an authentic cultural context. (Yamauchi and Ceppi, 1998; Wright and Taylor, 1995) Feurer, 1990; Watahomigie and McCarty, 1994; Hartley and Johnson, 1995; Wright, Taylor, Ruggeriro, MacArthur and Elisjassiapik, 1996)

One of the primary challenges in the teaching of heritage languages is the quest for fluency as an outcome of programming but also the training of highly qualified specialist teachers who understand the process of language learning, are fluent speakers and can offer the students a full array of speech forms from grammar to writing and reading. Accreditation for these specialized teachers must involve a new thrust if Indigenous languages are to survive in the next decade. So many heritage languages are at the point of extinction in Canada. The interest in bilingual/bicultural education must be supported with professional staff as First Nations take greater steps in language revitalization.
Language teaching in the schools may not, in most instances, produce fluency but the benefits of raising self-esteem, identity formation, behavioral improvements, better attitudes among students, Elders and community members. (Rudin, 1989, Ovando, 1994; Ayoungman, 1991)

Local Indigenous knowledge when combined with language teaching shows improvements in academic performance. (Stiles, 1997; Yagi, 1985; Slaughter and Lai, 1994; Rubie, 1999; Alaska Native Knowledge Network, 1998, Barnhardt, 1999)

Students can feel disempowered about their own cultural identity similar to the oppression experienced by their communities from outside institutions or governments. This may make the students question the validity of their own culture. Cummins wrote, “The Empowerment of Indian Students”, in 1992 and stated that an Indigenous student’s identity and view of the dominant culture may have an impact on that person’s academic performance. The findings of another study by James, Chavez, Beauvais, Edwards and Oetting in 1995 found that some Indigenous students experiencing academic success in public schools was related to assuming a stronger Anglo identity and not their own cultural identity.

The study by Vadas in 1995 surveyed 185 Navajo students in grades 7 and 11 for the relationship between their identification with Navajo culture and their achievement level on standardized tests. The results showed that student identification with Navajo language, culture and tradition assists in developing self-esteem and promotes academic success. McNerney and Swisher (1995) found that the sense of self is related to motivation, academic achievement and retention in school. They advise that research on these topics would better serve the study of improving practice than more work on learning styles or cognitive styles.

Deyhle and Swisher reported in 1997 that Indigenous students with a strong traditional knowledge and language usage require less reinforcement of their heritage in school than those who were weaker in both domains. (Review of Research in Education, vol. 22, p. 113-194)

Three case studies were done in 1982 by McBeath, McDiarmid and Shepro showing the results in three Alaskan communities with schools offering bilingual or bicultural programs. The results showed exceptional schools staffs, excellent test scores, satisfied parents and excellent student attitudes.

The Hualapai Bilingual/Bicultural Program in Arizona is nationally recognized for its capacity to develop Indigenous language literacy and a culturally founded curriculum. (Watohomigie and McCarty, 1994) The results have been outstanding in promoting academic achievement showing data over two decades from 1975 to 1995 that documented only two students did not graduate and a full 50% went on to higher education. (Watohomigie, 1995)
In New Zealand, Maori children in a strong Maori cultural program showed significant gains in academic performance, positive attitudes toward school, improved self-esteem, increased time spent on homework and improved organizational skills. (Rubie, 1999)

A study by Wright and Taylor in 1995 showed that Inuit children instructed in Inuktitut, the language of the home, showed an increase in self-esteem in one year while children instructed in English showed no increase. A further study in 1996 by Wright, Taylor, Ruggeiro, MacArthur and Elijassiapik showed that students taught in Inuktitut showed more progress than students taught in French or English, the language of the school.

There are an overwhelming number of reports with research evidence showing a positive relationship between culturally responsive education with culture and language as foundational precepts in schooling and academic performance. Having said that, research still needs to be done to examine the factors that increase or decrease the effectiveness of culturally responsive education and monitor educational systems that are in the process of transformation to document outstanding practices in a longitudinal framework.

**Emergent Role of the Teacher: Culturally Responsive Pedagogy**

The changing role of the teacher must now be defined within the context of culturally responsive education. The new paradigm of a 21st century classroom for Indigenous learners reforms the role of the teacher to be a Mentor/Guide who, “...is circulating, redirecting, disciplining, questioning, assessing, guiding, directing, fascinating, validating, facilitating, moving, monitoring, challenging, motivating, watching, moderating, diagnosing, trouble-shooting, observing, encouraging, suggesting, modeling and clarifying.” (The Wired Classroom, Jamie McKenzie, Educational Technology Journal, 1998)

The successful teacher adjusts learning strategies to challenge students. **The increasing body of research affirms the positive effects of an education system where culture is not inserted into education but education is inserted into culture.** (Geneva Gay, 2000)

Some discussions around the nature of how Indigenous students learn in an optimal manner include shared power relationships with the teachers, experiential learning, observational learning, small group investigation methods, a spiral curriculum for mastery learning, hands on or visual techniques with the teacher as mentor.

The Centre for Research in Education, Diversity and Excellence (Klump and McNeir, 2005, p.6) promotes a set of teaching principles in culturally responsive education that has five implementation levels for research:
• Teachers and students jointly work together
• Language and literacy is developed across the curriculum
• Lessons are connected to the experiences of the students to join home, school and community
• Engaging students with challenging activities with complex levels
• Using interactive dialogue over lecture using small group work
• Learning through observation
• Encouraging student decision making

To assess each principle, the five categories include indicators for measurement:

• Not observed
• Emerging
• Developing
• Enacting
• Integrating

The Alaska Native Educators gathered in assembly in 1999 and adopted the guidelines for preparing teachers to teach students from diverse backgrounds and do so in a culturally responsive manner. These guidelines complement the Alaska Teacher Standards and take the teachers into an additional realm of complementary knowledge and skills that culturally responsive teachers require to authentically meet the needs of Alaska Native children. The guidelines cover philosophy, learning theory and practice, diversity, content, instruction and assessment, learning environment, family and community involvement and professional growth.

The Alaska Native Knowledge Network (1998) offers guidelines for cultural standards for educators:

• Culturally responsive educators incorporate local ways of knowing and teaching into their work.
• Culturally responsive educators use the local environment and community resources on a regular basis to link what they are teaching to the everyday lives of the students
• Culturally responsive educators participate in community events and activities in an appropriate and supportive way.
• Culturally responsive educators work closely with parents to achieve a high level of complementary educational expectations between home and school
• Culturally responsive educators recognize the full educational potential of each student and provide the challenges necessary for them to achieve that potential.

Teacher competencies involve the development of an in-depth understanding of pedagogy suited to Indigenous learners, an in depth knowledge of content, learning styles, cognitive development stages of children, cultural knowledge, interpersonal
skills founded on cultural communication styles, a knowledge of the community cultural norms and protocols, history and educational goals for its children, and knowledge of the language of the Nation. Becoming culturally competent as a teacher means one is in a constant state of adapting to new contexts in a constant learning process to master new skills, bodies of knowledge, sensitivities and protocols.

Hawaii’s Kamehameha Early Education Program invests in its teachers as prime change agents to bring innovation into the classrooms. Teachers are afforded time for planning, resources and tools to try innovations with their students. They are encouraged to spend time learning about their students, the culture and the language. The Hawaiian Indigenous Education Rubric is a framework and a set of tools for understanding how to measure the impact of culturally relational education strategies specific to Hawaiian culture such as language use, community involvement, place based cultural content, context and data and accountability. (see Appendix 2)

Sound culturally responsive teaching styles include: self-directed learning, relational pedagogy, interaction with role models and Elders, providing learning scaffolds for student to create an environment of dynamic challenges, using informal methods of teaching as equal opportunities for learning as the formal classroom, using Indigenous knowledge to enhance parent participation, promote community cohesion, Nation pride, and collective well-being.

Culturally responsive education also capitalizes on the strengths of the learner by using a relaxed classroom environment that is experiential, oral through storytelling, visual, observational, using role playing, drama, arts, music, sharing circles based on the local culture for an authentic learning experience. (A Research Brief for Practitioners, University of Alberta, Aboriginal Services Branch, FNMI Toolkit, Government of Alberta)

Research work begun in the US and then transported to Queensland and later to New South Wales, Australia shows the evolution of productive pedagogy, authentic pedagogy and subsequently, quality pedagogy. The lessons learned from the qualitative and quantitative studies on these practices should be researched further with a view to their application to culturally responsive pedagogy. There are frameworks of higher levels of cognition that may be useful to First Nations educators and students.

The work of the Te Kotahitanga professional development program for teachers in New Zealand is an evidence based model for preparing teachers for culturally responsive pedagogy.

In their work in 1998, Cleary and Peacock offered guidance on successful teacher practice with Indigenous students:
“... the need to build trust; to connect with the community; to establish cultural relevance in the curriculum; to tap intrinsic motivation for learning; to use humour; to establish family support; to provide situations that yield small successes; to make personal connections with the students; to use highly engaging activity based learning and in some cases, co-operative learning; to provide role models; to be flexible, fair and consistent; and to provide real audience and purpose for student work.” (p.13)

In 1990, Swisher commented on teaching strategies that lead to improvements in academic achievement in 33 studies on Student Team Learning citing collaborative style classrooms with peer directed work encouraging students to take risks and try new skills.

Teachers play a key role in creating culturally responsive classrooms and schools that are welcoming, inclusive and equitable. Teachers trained in cultural competency have the ability to teach children across many cultures other than their own and directly impact the achievement levels of those children in their classrooms. (Ming and Dukes, p.42, 2006).

Pedagogy changes in a culturally responsive classroom. “Culturally responsive pedagogy ...engages students spiritually (culturally), emotionally, physically and intellectually...for both heart and mind education.” (Nicol, Archibald, Kelleher, Brown, 2006)

The Northwest Territories offers professional development to all first year teachers to develop culturally responsive teachers through the Teacher Induction Program. (NWT Teacher Induction Program, 2012)

Teacher attitudes, behaviors and characteristics are also critical to student achievement. One of the essential qualities of a teacher to be successful in establishing good working relationships with Indigenous students is having a caring, warm and supportive personality. (Swisher and Deyhle, 1989) When students feel as though someone cares for them and their progress, they work hard to please and in doing achieve greater academic results. The teacher who expects high performance and academic excellence from students offers a high-quality learning environment leading to greater success for Indigenous students. (McCarty, 1993) When students know that someone believes in them and is ready to challenge them to greater heights of excellence, the students will typically meet the challenge. Those teachers who have a strong respect for Nation traditions and ceremonies and a desire to learn within the cultural protocols and boundaries will be seen as authentic by the students, not only caring but respectful and engaging. Students will work harder for such a teacher because of the relationship of mutual respect.

A study in New Zealand by Cartledge and Kourea (2008) offers a series of self –reflecting questions for educators to assess any attitudes of bias that might interfere with their teaching practice. The same study found that teachers who are “indifferent to culturally responsive practices potentially hinder students’ learning
Bias can enter the classroom in teacher attitudes to students of different cultures. The questions below were designed to look at teacher bias and were modified by Prochnow and Macfarlane (2008) from a New Zealand viewpoint to engage teachers in examining how others assess their actions and to engage in open dialogue.

1. Does the ethnicity of the students in my class influence my perspectives/biases in terms of how I respond to and manage their learning? If so, how?
2. What is the correlation (negative/positive) between my behavioral interactions with students and their ethnicity?
3. How are my responses being perceived by the students?
4. How are my responses being perceived by the students’ peers?
5. Is the learning of my students improving? How do I know that? If not, why not?
6. How equitable and culturally appropriate are my class/lecture management strategies? How do I know?
7. Do my class/lecture management strategies facilitate long-term change(s) or do they merely cater for the here and now?
8. How do I identify cultural influences on, and explanations for, various learning styles and behavioral nuances?
9. How do I currently respond to/address positive and long-term learning and behavioral change in my students? Do I influence and empower their pro-social skills?
10. What class/pedagogical management skills do I need to develop? Do I effectively manage these in the present environment of diversity?
11. How can I improve my management/instructional skills so that I am not resorting to teaching ideology/processes that proceed solely from a western-scientific space?

An additional reference to support the work of Prochnow and Macfarlane is a study by Howard (2003) that offered guidance to teachers to self-reflect in order to be aware of their own beliefs and behaviors to fully engage in the art of culturally responsive teaching.

In 2005, “A Teacher’s Tool for Reflective Practice: Racial and Cultural Differences in American Indian Students’ Classrooms,” was developed by Apthorp, Kinner and Enriquez-Olmos for the Regional Educational Laboratory as a tool for personal journaling or for group study. Both methods help teachers learn more about themselves, their students and their instructional practice. The tool shows cultural differences between teachers and students. The tool also helps teachers explore how cultural responsiveness is affecting student motivation. There are 6 areas of self-reflection: social organization of the classroom, participation and roles,
classroom communication and informal learning, knowing my students and their families, the home-school connection and, knowing myself and knowing my fellow teachers.

The classroom environment is a laboratory unto itself as the teacher becomes Mentor, Guide, Motivator or Navigator weaving the culture of the student and the community into the curriculum to encourage Indigenous students ideas within the context of their culture while building together new knowledge systems to create a higher range of analytical level of understanding. In the 21st century the calling for graduates of higher education will not only be the degree level attained and the skill set associated with the learning, but the social/emotional/cultural and spiritual capacities of the character of the graduate that enable him/her to authentically communicate, work and create abundance in First Nations in multiple areas for development.

Overlapping fields hold the promise of fertile new philosophy, theories, methodologies, and outcomes such as the intersecting fields of economics with the social/cultural/educational fields. The work force of the next century will have new skill sets and competencies we must engender now. The development issues among First Nations will be some of the most compelling and innovative challenges in the 21st century. First Nations graduates must not only have state of the art modern skills but also be grounded in their own traditions to ensure the transmission of cultural knowledge is applied to modern questions of development and design.

The findings of Hattie in “Teachers Make a Difference: What is the Research Evidence” in a conference address in 2003, offered the results of the examination of over 500,000 studies to find the attributes of excellence for expert teachers. He found the major sources affecting student achievement and determined that the teacher accounts for 30% of the variance in student achievement. He concluded that “what teachers know, do and care about is very powerful in the learning equation.” (p. 2)

By attending to the marginalization of Indigenous students in the classroom and increasing student motivation to learn, schools can be organized to provide culturally responsive education as a powerful tool to improve achievement levels. Culturally responsive education is education by design, a goal of parents and communities to ensure that their children are intentionally imprinted with a Nation mind of identity, history, rich ceremonial life, cultural values and protocols, language and a deep connection to the land.

Teacher training both pre-service and in-service is an important area for collaborative work among First Nations organizations and Faculties of Education. Teachers are the navigators and mentors whose specialized skills should include multi-epistemologies if they are to meet the needs of their students in this millennium.
In the Accord with Deans of Faculties of Education signed in 2010, First Nations now have an opportunity to make significant additions to the accreditation of teachers to include culturally responsive education and language immersion programming leading the forefront of change. Partnerships are critical to increasing the academy in these important fields if First Nations and Canada are to close the gap in student achievement deficits and not only remain competitive in the world but lead the change globally to diverse, equitable and culturally conscious education.

Culturally Responsive Measurement and Assessment

Much of the work in the area of cultural and linguistic responsiveness has come out of the US and particularly in the field of health as health practitioners grapple with changing demographics of the populations they serve, as minorities transition to become the majority. The effort to offer culturally responsive health services has led to the development of National Standards for Culturally and Linguistically Appropriate Services in the US and assessment tools for organizations to measure the facets of their cultural responsiveness over many program areas.

In an address to the American Indian Teacher Education Conference in June, 2009, William Demmert, Jr. discussed Curriculum Based Measures (CBMs) or tools to measure academic performance among students in basic skills such as reading, writing and mathematics.

In addition, he and his colleagues also developed a set of rubrics to measure the level of a culturally responsive program and made sure the rubrics met national standards for reliability and validity. The rubrics included:

- Culturally based Indigenous language use
- Culturally based pedagogy
- Culturally based curriculum
- Culturally based patterns of participation in leadership and decision making
- Culturally based methods of assessing student performance

Each of the categories was assessed using indicators of low to high in:

- Not present
- Emerging
- Developing
- Enacting

In order to research the well-being of students, another assessment tool was developed called the Indigenous Cultural Well Being Continuum rubric with four levels of measurement as above. The Continuum looked at:
• Strong, positive Indigenous identity, active involvement in cultural community
• Active and practical traditional spirituality
• Understands responsibility to family, community, society
• Shows continuing development of learning
• Engages in physical activity

These measurement tools may assist First Nations in pursuing more rigorous designs of new assessments that are culturally compatible with their own school systems. Determining accountability is also a feature of CRE and Self Government.

To understand the impact of culturally responsive schooling on reading and literacy, we can examine US national test scores from standardized testing and also infer results when culturally responsive assessment in a culturally responsive classroom is absent or has been sacrificed.

From the US study by McKinley and Brayboy (2008) titled, "Culturally Responsive Schooling for Indigenous Youth,"

There are a few key pieces of scholarship that help shed some light on reading and literacy for Indigenous youth. The primary data source for learning how American Indian and Alaska Native students perform on standardized measures of reading achievement is the National Indian Education Study, which relies primarily on NAEP – or National Assessment of Educational Progress – data from the National Center for Educational Statistics (Moran & Rampey, 2008; Moran, Rampey, Dion, & Donahue, 2008).

The National Indian Education Study (NIES) includes a nationally representative sample of over 10,000 Indigenous students in the 11 states with over 50% of the nation’s American Indian and Alaska Native population. The study includes student test scores on the NAEP reading and math assessments at the 4th and 8th grades in 2005 and 2007. It also includes survey data from over 10,000 Indigenous students and their teachers and school administrators in the same years. According to the NIES data, the average reading scores of Indigenous youth are lower than the scores of their White and Asian peers, but very similar to the scores of their Black and Latino peers. On the 4th grade NAEP reading assessment, 18% of Indigenous students scored at or above the proficient level, compared to 33% of all non-Indigenous students, and 43% of White students. (p. 8)

The scores show no real improvement in reading scores in the three years of the study, 2005-2007. Students are still not at grade level. The overarching concern is now for those Indigenous students whose scores remained relatively the same while time for their culture and language were being sacrificed.

In the Journal of American Indian Education (2008) Reyhner and Hurtado provide the argument that “commercially developed reading programs are generally one-size-
fits-all approaches targeted at a predominantly White middle class students who speak a standard or mainstream dialect of English. “

Along with the findings of the NAEP data on reading mentioned above, the NIES study also asked for a survey from teachers, administrators and students working in schools serving Indigenous youth. Part of the survey is dedicated to understanding how Indigenous languages and cultures are integrated into the education program.

“Teachers were asked the extent to which they used American Indian and Alaska Native content or cultural standards to plan their reading and language arts lessons. Overall, just 3% of the fourth graders and 2% of the eighth graders had teachers who said they relied on Indigenous content or cultural standards “a lot” in their reading and language arts planning. (p.40) Also troubling is the high percentages of students in all types of schools who have teachers who report not using Indigenous content or cultural standards and/or not being aware that such standards exist.” (McKinley and Brayboy, 2008, p. 14)

It is clear that if culturally responsive education is to be supported across classrooms in First Nations throughout Canada, the tools need to be developed to evaluate how well the curriculum reflects the CRE initiatives and how well the students are doing academically within this context. Some examples of rubrics and indicators have been provided as inspirational examples but so much more work will be done in the future to clearly establish standards of measurement and culturally compatible assessment tools.

The best guidance we have at the moment in this regard for Indigenous learners comes as an example of the very good work underway in Hawaii. The Na Lau Lama Indigenous Assessment working group has offered some preliminary findings as a precursor to greater detail being provided in the full report of Na Lau Lama, a Statewide Collaboration to Improve Outcomes for Hawaiian Students.

The Working Group dedicated themselves to three priorities:

1. To identify research based, culturally appropriate approaches to diverse forms of assessment in education for Native Hawaiian learners that: involve meaningful performances, including those that are place-based and community based; are culturally appropriate in format and delivery; give feedback that can recursively inform instruction and learning in a frequent, timely way; provide evidence of progress in globally-valued academic skills and content, as well as, in locally valued knowledge, skills and dispositions

2. To encourage implementation of multiple and diverse forms of assessments and,

3. To advocate for recognition of such assessments as important measures of student achievement. (p.1)
In addition, the Working Group also offered a listing of successful practices for teachers to use in culturally responsive and relational assessments.

SUCCESSFUL PRACTICES

Diversify classroom assessments for students.

Each type of assessment benefits the teacher and prepares students to respond in a variety of ways allowing them to demonstrate their knowledge in multiple contexts (see Figure 1).

Assessments should provide evidence of progress in globally-valued academic skills and content, as well as locally-valued knowledge, skills, and dispositions.

Frequently use formative and other contextualized assessments. These types of assessments are designed to evaluate criteria established by the teacher and inform the teacher of the student's understanding of the material being taught. By reviewing these assessments, teachers have an opportunity to modify their instruction to meet student needs. Formative assessments also give students appropriate, contextualized feedback to make improvements.

Use assessments that are culturally appropriate in format and delivery. Ho'ike, literally a demonstration of learning, is a powerful assessment tool that is based on a meaningful task delivered to an authentic audience.

If teaching and learning is in the Hawaiian language, assessments should be given in the language of instruction.

Take a strengths-based approach with learners, building upon their abilities and their growth. Students will be able to experience success when priority is placed on individual growth and the internalization of standards of excellence. (p.1)

The Working Group has been able to detail guiding principles, design principles and a mapping of assessment tools. The plan is to create more training for teachers, academic performance based assessments, and a strategy for implementing assessments.

It is noteworthy that the concepts underpinning new models and strategies are situated within the language. The Indigenous language is the vehicle for describing goals, responsibilities and methods in a visual and auditory sense. The language imprints the visual in the mind as a whole concept and it is held in a place of respect knowing the duty for implementation is part of the goal.

The figures provide guidance on new paradigms for First Nations to develop in our respective homelands fuelled by our own languages, spirituality and worldviews.
(See the figures below for Guiding Principles, Design Principles and recommended Actions to begin the work.)

**GUIDING PRINCIPLES**

The working group suggests that Hawaiian culture-based assessment is characterized by the following attributes:

**Kūlia i ka nu'u (Strive to reach the highest):** The pursuit and achievement of attaining the best possible outcome and working towards excellence is important in a Hawaiian context. Within Hawaiian culture, based on a deep understanding of interdependence and mutual respect, excellence is characteristic of a particular performance or product and not a result of a competition (that is, excellence reflects individual and collective achievement, rather than "besing" someone else).

**E kuahui like i ka hana (Let everybody pitch in and work together):** Assessment is strengths-based, respectful and constructive, looking for the particular attributes, contributions and potentials of the individuals or groups assessed, with particular emphasis on how they contribute to the larger community. Implicit in this is a respect for the “funds of knowledge” of students and their communities; consistent with this attribute is an emphasis on growth and continuous improvement that results from diligent effort.

**Ma ka hana ka ʻike (In working, one learns):** Assessment is personal in that it is appropriate to a particular individual, place and time. There is an emphasis on engagement as well as application of knowledge and skills in authentic ways.

**I ka nā nānō ʻa ʻike (By observing, one learns):** Creating the ambiance, i.e., the appropriate conditions such as time and place, for focused observation and reflective dialogue promotes mindful learning as an internal and external form of assessing the levels of engagement, processing and application.

**DESIGN PRINCIPLES**

The working group suggests the following principles for use when designing or selecting assessments:

**... the purposes for the assessment include:**
1. creation of shared meanings and clear expectations that increase understanding and build relationships between teachers and learners,
2. identification of learners' strengths and support of teachers' efforts to build on those strengths,
3. authentic opportunities to explore learners' roles and function within a community (as in stewardship, citizenship, service learning).

**... the design and content of the assessments incorporate:**
4. methods that are aligned with the curriculum, language of instruction, and pedagogy,
5. a diverse range of approaches, tools, methods and venues that allow learners to demonstrate their knowledge in multiple contexts
6. culturally-grounded practices such as hoʻike and intergenerational participation.
7. indigenous knowledge systems that span families, generations, and communities, and,
8. consideration of all dimensions of the learner's development - the physical, emotional, intellectual and spiritual.

**... the assessment is conducted in a context where:**
9. relationships are sustained over time and include high levels of mutual respect and trust,
10. connections are explicitly made between the knowledge assessed, the learners' past experiences and the future path of the learner/community,
11. the learners' roles in and relationships to the knowledge studied (kuleana) are recognized in addition to the content itself, and,
12. the assessors accept responsibility for using culturally-appropriate methods, and for using the data in a community-sensitive manner.

**... the assessment results are used in a way that:**
13. informs the structure and content of next steps and future learning experiences (i.e., "formative" assessment, differentiation, recursive data use, etc.),
14. empowers learners and increases their opportunities for success,
15. improves the situation and conditions for the learner as well as the community; and,
16. gives the indigenous community control over interpretation of results and of how findings are reported within the community and beyond.
**Figure 1. Mapping of assessment tools by contextualization and purpose.**

**Actions**

The working group offers the following recommendations to teachers, the Hawai‘i Department of Education, the University of Hawai‘i and the Hawai‘i State Legislature, as well as others with the power to act on them:

1. Provide an orientation on indigenous assessment for administrators, principals and teachers (Design Principles 1, 2).
2. Require coursework in Hawaiian culture and language for all public school teachers (Design Principle 7).
3. Require a geographic, demographic, socioeconomic and cultural orientation for all teachers to the specific communities in which they teach (Design Principles 2, 3, 11).
4. Collect and publish (via the internet) a set of assessment tools and methods that may be used in alignment with the guiding principles (Design Principles 4, 5, 6, 8).
5. Compile case studies of context-rich examples to serve as models of indigenous assessment for educators and administrators (Design Principles 4-8).
6. Collaborate with the Teacher Education Coordinating Committee (TECC) to ensure pre- and in-service courses in assessment design and methodology are required for teacher certification and require the inclusion of information on indigenous and culturally-based assessment as part of those courses (Design Principles 4, 5, 12, 13).
7. Convene a task force to work with the DOE Evaluation department to identify ways to include indigenous assessment in the HSA (Design Principles 1, 3, 13, 14).
8. Develop multiple alternatives to Hawai‘i State Assessment (HSA) to permit demonstration of standards proficiency in diverse ways, e.g., portfolio and authentic performance-based assessments (Design Principles 5, 14, 15).
   a. Short-term: Develop alternative benchmarks with accompanying sample performance assessments and rubrics across content areas in the HCPS that incorporate Nā Honua Maui Ola Guidelines.
   b. Long-term: Develop a comprehensive culture-based educational strand within the HCPS that incorporates Nā Honua Maui Ola Guidelines.
10. Develop a long-term, system-wide strategy for implementing additional assessments (multiple, frequent, diverse) that complement the HSA and provide critical information that guides classroom instruction (Design Principles 2, 5, 15, 16).
The culturally responsive approach to assessment is built upon the belief that all students can succeed in their academic endeavors when they are provided with programs grounded in their culture, language, and heritage and the students' experiences are valued. The components of culturally responsive assessment include affirming diversity, developing a socio-cultural consciousness, engaging in critical reflection, examining how cultures shape schools, promoting change and participating in professional development. (Sullivan, 2010)

“The most basic component of culturally responsive assessment is respecting the cultural differences of students, families and colleagues. Cultures differ in what constitutes desirable behavior, temperament, and traits, and those behaviors that deviate substantially from the prevailing norms of a given setting risk being pathologized. A culturally responsive individual recognizes that such deviations often represent group based differences in values and learned behaviors, instead of assuming they represent some kind of dysfunction. Thus, rather than thinking of certain differences as something that disadvantage a student, a culturally responsive practitioner adjusts expectations to allow for natural human diversity, tries to understand the possible value of those differences, and considers how students’ differences can be used to facilitate their success.” (Sullivan, 2010, p.2)

The Anglo North American cultural base of assessment tools in common usage today fails to properly assess First Nations students resulting in the over-representation of Indigenous students in special education. Difficulties in differentiating between problems in language usage and disabilities have seen disproportionate numbers of First Nations students labeled and placed in special education. Cultural backgrounds and bilingualism are not adequately represented in any existing norm sample.

“Leading authorities in culturally responsive assessment explain that under representation, but more typically over representation, across disability categories in special education often occur as a result of: 1) lack of strong and consistent pre-referral policies and practices by regular education personnel, 2) inappropriate referral and assessment procedures, and/or 3) biased assessment practices (Carraquillo, 1991, in Baca and Cervantes, 2004, p.16; Baca, 1990, p.9)
From Special Education Assessment Process for Culturally and Linguistically Diverse Students, Oregon Dept. of Education, Western Oregon University, 2007)

Some students experience the opposite side of the issue and are not identified as special needs learners, missing vital assessment and treatment options that compound their problems in later life. Limited resources for assessments, long waitlists for service and lack of access to such specialized services continue to be a problem in First Nations schools and especially for children in small schools or remote schools.
Early intervention solutions can be offered to students and their families without labeling. Appropriate diagnostic, culturally sensitive tools are needed in all subject areas and must be accompanied by consistent referral practices. Training for teachers and allied education personnel is very important both to deal with personal bias and to ensure that teachers are knowledgeable about their students’ history and culture. A new tool for assessing infants 0-3 years has been developed and is in use at Toronto’s Sick Children’s Hospital. The tool assesses infants for trauma or the effects of neglect and provides a service plan for parents and caregivers to reverse the negative impacts on brain development and social and emotional growth. Early intervention with infants can change the life trajectory of the child/youth/young adult from trauma to balanced mental health.

There is a need for culturally responsive standardized assessment tools, highly qualified bilingual specialists and culturally responsive research based instructional practices for First Nations students to be properly assessed and placed in programming. Until such tools are available, it is recommended that intensive communication among all professionals and the family be considered next best. It is critical to distinguish between a difference and a disorder. Practitioners need a well established knowledge of the complexities of the student’s cognitive and academic performance, student’s level of acculturation and language proficiency.

Emerging promising practices in alternative culturally responsive assessment practices are moving toward the “use of multi-modal, context embedded and provide information on how a student thinks or learns. The movement away from standardized, norm referenced tests for CLD students is a result of the recognition on the part of special educators that alternative procedures are likely to contribute more equitable, diverse and descriptive information regarding CLD students’ abilities and skill levels. In addition, it is quite possible that no standardized and/or validated assessment approaches exist for a given student (for example, it is unlikely that standardized and validated assessment approaches exist for a student from Afghanistan or for a student who is Navajo), or that there are staff trained to use such instruments if they did exist.” (Guidelines and Resources for the Oregon Dept. of Education, Western Oregon University, 2007, p. 20)

The Oregon Department of Education has stated that any assessment of students in the public schools should presume that the student is without disability and that there are functional reasons for the lack of achievement such as inappropriate instruction, linguistic differences, poor attendance, motivation, medical factors, or socio-economic factors. (Guidelines and Resources for the Oregon Department of Education, 2007, p.20)

The Oregon Department of Education (p.23-33) has a number of useful resources:

- Hierarchy of Assessment Levels and Personnel Required
• Special Education Assessment Process Checklist

• Steps in the Special Education Assessment Process (tools and suggestions on alternative tests)

• Definition of Terms for multicultural assessment, acculturation, biculturalism, bilingual education, culturally and linguistically diverse students, culturally responsive practice, exclusionary factors, language dominance, language proficiency

• Alternatives to using Standardized Tests such as RTI, CBM, PBA, Dynamic Assessment

• Other tests such as BICS, CUP, CALP

The Department offered a snapshot of what has worked for them in promising practices in research, observation and experience in dealing with students who may be eligible for special education services.

• Prevention—when students are provided with research based academic programs that address their needs along with culturally responsive curriculum, the success rate increases

• Parental Involvement—parents are involved in the pre-referral and special education process, school personnel use the language of the family, forms are in the language of the family, parents know their roles and rights

• Pre-referral RTI process/Intervention—formalized procedure, RTI is an option for determination of a learning disability, when RTI is chosen, educational interventions must be implemented prior to any referral for special education eligibility

• Bilingual assessment—evaluation of a bilingual individual by a bilingual practitioner in a bilingual manner

• Second language acquisition process—complex and lifelong, best developed by exposure to meaningful activities that focus on language use

• Worldview—encompasses social, economic, political climate, family influences, sexuality, personal characteristics, gender, cultural background, spirituality
Figure 1. Pre-Referral/Response to Intervention Process for Culturally and Linguistically Diverse Students

Tier I
Regular or Bilingual Education Classroom with ESL Support
Universal Screening for L1 & L2

Does Not Meet Expected Level

Refer Student to Assistance Team (TAT)

Tier II.A
TAT Collects All Exclusionary data – (see Steps 1-6)
- Family Socio-Economic/Cultural Dynamic
- First/Second Language Acquisition – Dominance/Proficiency
- Acculturation Level
- Developmental/Medical/Socio-Emotional History
- Academic/Attendance History

TAT Applies Decision rules

Does Not Meet Exit Criteria

Tier II.B
SRB Supplemental Intervention 1
Culturally Responsive Instructional Methods

TAT Applies Decision rules

Does Not Meet Exit Criteria

Minimal Progress
Insufficient Progress

SRB Supplemental Intervention 2

TAT Applies Decision Rules

Does Not Meet Exit Criteria

Minimal Progress
Insufficient Progress

SRB Intensive Strategic Intervention 1
Culturally Responsive Instructional Methods

TAT Applies Decision Rules

Does Not Meet Exit Criteria

Insufficient Progress

SRB Intensive Strategic Intervention 2

Referral to Special Education
Culturally Responsive Curriculum

Essentially the curriculum of most schools continues to be Eurocentric in its orientation, housed in a system similar to that of one hundred years ago and one in which the majority of First Nations students find themselves in the quest for a graduation diploma that will lead them to a job or further education. Many First Nations students still find themselves in the bind of having to make a decision to attend a school steeped in culture and language immersion or attend an academic academy with high educational standards deemed best in the mainstream. Many Indigenous students now attend school off reserve or away from their communities. In Australia, 80% of Aboriginal children are attending public schools, 90% in the United States and approximately 70% in Canada.

The real impetus for the development of culturally responsive education comes at a time of fiscal constraints from a global recession and a narrowing view of education as a business model. It is no accident that when the economy is under fire, the value of standards testing for performance/results based outcomes emerges as the panacea of the day. The diminished attention to the arts, music, drama, theatre and physical education as well as language and culture in the curriculum is counterproductive to the development of mentally and emotionally healthy Indigenous students.

Momentum is building for change to redefine education through strategies building on cultural frameworks that realign educational goals, transform schools and develop new classroom instructional strategies and curriculum content. The journey is one of rebuilding Indigenous identity in language, culture and traditions through schooling.

Despite all of the rhetoric for academic standards, results and performance outcomes, there are significant developments globally that are positioning culturally based education at the forefront of establishing innovations that will achieve all of the goals set out in standards testing but do so within the framework of Indigenous culture and language. Research has shown Indigenous students’ academic performance is improved when school curricula promote the language and culture of the local community. (Demmert, 2001)

In this regard, the Alaska Native Knowledge Network (1998) offers some outstanding standards for curriculum under construction or renewal:

- A culturally responsive curriculum reinforces the integrity of the cultural knowledge that students bring with them
- A culturally responsive curriculum recognizes cultural knowledge as part of a living and constantly adapting system that is grounded in the past, but continuously to grow through the present and into the future
• A culturally responsive curriculum uses the local language and cultural knowledge as the foundation for the rest of the curriculum
• A culturally responsive curriculum fosters a complementary relationship across knowledge derived from diverse knowledge systems
• A culturally responsive curriculum situates local knowledge and actions in a global context

Culturally responsive curriculum is not simply a generalized program of culture and language dispersed throughout the curriculum. It is education inserted into living culture in all its aspects. The study of mathematics can be one of those areas where culture can inform the study by engaging Indigenous learners in authentic ways when the subject is connected to students lives and presents accurate learning materials.

Transformative Education for Aboriginal Mathematics Learning began in 2006 to create a culturally responsive mathematics curriculum for First Nations students. The partners were Nisga’a Nation and School District, the Vancouver School Board, and the University of British Columbia, the Haida Gwaii Nation and School District. (Nicol, Archibald, Kelleher and Brown, 2006) The results of this initiative should be monitored for replication elsewhere in First Nations schools.

In 2002, Apthorp et al., discussed ethnomathematics as, “...the study of traditional and everyday mathematics and the integration of findings from this into the development and use of curricular methods and materials that are aligned with content standards”. (Brenner, 1998; Davidson and Miller, 1998) Ethnomathematics “acknowledges the value of the knowledge base that children themselves bring to school” and engages children in activities based on everyday mathematics in ways that help them “develop meaningful problem solving and greater mathematical power.” (Brenner, 1998, p. 239)

Teachers must undertake specialized training to understand cultural knowledge and develop culturally responsive curricula to meet the learning needs of Indigenous students. Appropriate training in pre-service for teachers or in-service is needed. Teacher accreditation should have, as part of every faculty of education, a specialized stream of courses that take education students into deep culture not surface Pan-Indianism and into the deeper dialogue around standards, pedagogy, curriculum, school policies, assessment and institutional change. Salary remuneration should be associated with the specialist certificate in culturally responsive education for teachers of First Nations students.

The Navajo Nation also developed a set of cultural content standards for their schools from early learning to College level studies and established a framework for their use. The guidelines offer cultural content designed to ensure that Navajo children and youth receive education in deep knowledge and understanding of what it is to be Navajo through culture and language for academic excellence, emotional
well being, identity formation and service to the Nation. The Navajo believe that such a grounding in worldview, language fluency and culture will contribute to building a strong citizenry within their Nation and for participation anywhere in the world.
A Culturally Responsive Education Framework

It is useful to have a basic framework as guide when approaching the changes required to institute culturally responsive education in the school system. The elements identified by Phuntsog in, “The Magic of Culturally Responsive Pedagogy: In Search of the Genie’s Lamp in Multicultural Education”, 1998 show five basic elements:

1. **Cultural Literacy**
   - The culture of the child, family and community is used to build the education experience of the child for congruence
   - The teachers need to have experience in cultural literacy and appropriate training
   - Some research has shown that when Indigenous students are taught by teachers of the same culture, learning is deepened and superior (McCarty and Watahomigie, 1999)
   - Teachers of the same culture or cultural affiliation may have increased intuitive awareness of the learning styles of their students and more congruent teaching styles (Pewewardy, 2002)

2. **Self-Reflective Analysis**
   - Overcoming bias or ethnocentric outlooks is difficult
   - Teachers need to develop skills to reflect on their practices and use empirical, observational and analytical methods to evaluate and revise their teaching styles (Pewewardy, 1994)
   - Teachers need to see themselves as learners and be willing to engage in learning about multiple epistemologies not their own (Cleary and Peacock, 1998)
   - Even Indigenous teachers transform under such a system of self-exploration as personal attitudes left over from de-culturalization are altered

3. **Caring, Trusting and Inclusive Classrooms**
   - Teachers use a demanding but warm style with their students
   - Teachers provide a classroom of cooperative learning, less individually competitive, small group work
   - Teachers engage their students in interactive dialogue, questions, feedback, scaffolding and building on students prior knowledge

4. **Respect for Diversity**
   - The school reflects the cultures of the students in attendance and is a model of diversity
• Schooling provides students with Indigenous knowledge, place based education, and connects students with knowledge in modern sciences and prepares them to function in the mainstream if they choose

5. Transformative Curriculum

• Creates meaning: what kind of society do we want?
• Curriculum promotes equity in the classroom
• Transformed curriculum provides learning opportunities for children to enhance their critical thinking skills to analyze their situation and transform it with the language of possibility
• Children become agents for social justice and change

The guideposts for First Nations who are moving in the direction of establishing cultural standards, culturally responsive curriculum and pedagogy including culturally responsive assessments are provided as discussion tools for future action.

In Hawaii, the work of the CHARLE Committee (2002) offers draft guidelines for creating culturally responsive classroom environments. The guidelines are a clear reflection of Hawaiian values, spirituality, cultural norms, community customs, history, linkage to ancestral wisdom, commitment to language fluency, connection to land enabling a global perspective grounded in ancient wisdom and love of lifelong learning for joy and fulfillment for one’s self and family, local and global communities.
HAWAI‘I GUIDELINES
FOR
CULTURALLY HEALTHY AND RESPONSIVE LEARNING ENVIRONMENTS

Culturally healthy and responsive learning environments...

1. promote personal growth and development to strengthen cultural identity, academic knowledge and skills, pono decision making, and ability to contribute to one’s self and family, and local and global communities.

2. practice Hawaiian heritage, traditions and language to nurture one’s mauli and perpetuate the success of the whole learning community.

3. incorporate cultural traditions, language, history, and values in meaningful holistic processes to nourish the emotional, physical, mental, social and spiritual well-being of the learning community.

4. empower an intrinsic desire for lifelong exploration of learning, teaching and leading to pursue standards of excellence and quality.

5. utilize multiple pathways and multiple formats to assess what has been learned and honor this process to nurture the quality of learning within the community.

6. recognize that culture and tradition, as a constantly adapting system, are grounded in the knowledge of the past to address present and future situations.

7. promote respect for how the Hawaiian cultural worldview contributes to diversity and global understanding to improve society.

8. sustain respect for the integrity of one’s own cultural knowledge and provide meaningful opportunities to make new connections among other diverse knowledge systems.

9. invite on-going participation with community members to perpetuate traditional ways of knowing (feeling, speaking, and doing), learning, teaching and leading to sustain cultural knowledge and resources within the learning community.

10. foster an awareness of and appreciation for the relationship and interaction among people, time, space, places, and natural elements around them to enhance one’s ability to maintain a “local” disposition with global understandings.

11. mālama the entire learning community and the environment to support formal and informal learning of good stewardship, resource sustainability and spirituality.

Committee Guidelines Draft 1: March 22, 2002
CHARLE Committee
12. engage in Hawaiian language opportunities to increase language proficiency and effective communication skills in a variety of contexts and learning situations utilizing classical, traditional, contemporary and emerging genre.

13. instill appropriate Hawaiian values, expressions, behaviors and practices to nurture healthy maoli and mana.

14. foster respect for diversity among members of the learning community to enhance one’s sense self, family, and local and global communities.

15. provide a safe haven to support the physical, mental, social, emotional and spiritual health of the total community.

16. support lifelong aloha for Hawaiian language, history, culture, and values to perpetuate the unique cultural heritage of Hawai‘i.

17. encourage communication, participation and active collaboration by the learning community to pursue appropriate educational outcomes for all.

18. develop an understanding of Hawaiian language, history, culture and values to foster a sense of place, community, and global connection.

19. foster an understanding of Hawai‘i’s history from an indigenous perspective to better Hawai‘i’s future.

20. cultivate a strong sense of kuleana to one’s past, present and future to bring about joy and fulfillment for one’s self and family, and local and global communities.
Institutional Factors Promoting Systemic Change

In the 1990's, discussions began around the concept of standards based reform founded on the belief that every student should have a quality education with a deep understanding of and ability to use important concepts, facts and skills to improve his/her future.

First Nations must set their own culturally responsive standards for Nation building for ensuring cultural as well as linguistic continuity. Alaska, the Navajo Nation and Kamehameha Schools holds some outstanding examples of how systemic change can create a more culturally respectful and responsive learning environment for Indigenous students.

Standards for Culturally Responsive Schools

The policy study published in 1998 by the Commission for Children and Youth in Alaska offered a comprehensive strategy for providing early childhood education for the children of Alaska and identified the critical need for more Indigenous teachers and a culturally responsive curriculum for Alaska Native children. (7)

Subsequent work has been done by the Alaska Native Knowledge Network to create culturally responsive teacher preparation guidelines, recommendations for culturally responsive Boards of Education and schools and to establish a set of cultural standards for the state. Policy change has affected the entire system of education to become more culturally safe and culturally grounded in an environment of respect and reciprocity.

There is a very important publication of Cultural Standards (8) developed by the Alaska Native Knowledge Network that offers a comprehensive framework for First Nations to view with regard to the development they might undertake to develop their own community based standards that reflect their specific cultural values, language usage, Nation identity, and homelands.


The standards were developed based on the belief that students need a firm foundation of heritage language and cultural knowledge Indigenous to the place of origin in order to develop cultural well-being. The qualities and practices are described in the standards to enable educators, curriculum, and schools to become culturally responsive to the educational needs of Indigenous learners.

The cultural standards were developed by Alaska Native educators to provide a lens for schools, educators and communities to examine the extent of how they are attending to the cultural well-being of children. The notion of cultural standards is based on the belief that a foundation in the heritage language and culture of the Indigenous child in a particular geographic location is fundamental to the cultural wellness of the child, the community and the land. “By shifting the focus in the curriculum from teaching/learning about cultural heritage as another subject to teaching/learning through the local culture as a foundation for all education, it is intended that all forms of knowledge, ways of knowing and world views be recognized as equally valid, adaptable and complementary to another in mutually beneficial ways.” (Alaska Standards for Culturally Responsive Schools, Alaska Native Knowledge Network, 1998)

The standards are a useful framework that can be modified to suit local traditions and their meanings within community. They can be used to review teacher performance, strengthen language and culture, as criteria to evaluate programs, a guide for policy development and the allocation of resources for an equitable education, provide a lens for the community to review its parenting styles and optimize the home environment for learning, and finally for the review of school or district policies for curriculum and pedagogy.

The listing of the standards provides for the concept that a culturally responsive school will:

- foster the ongoing participation of Elders in all aspects of the schooling process
- provide multiple avenues for students to access learning as well as multiple forms of assessment
- offers the opportunity to learn in or about one’s heritage language
- shows a high level of involvement with the professional staff who are of the same cultural background as the students they serve
- offers facilities that are compatible with the community environment in which they are located
- fosters ongoing participation, communication and interaction between the school and community

In summary, there are few studies that help us identify the processes for collaboration to produce culturally responsive standards and guidelines at the level of the First Nations school authority or Regional First Nations Education Authority.
(Saskatoon School District, 2008) Some standards exist but are still few in number. The process used to devise the standards is not well documented.

Research should be considered to assess the impact on academic achievement of Indigenous students using a culturally responsive curriculum, presented by a teacher who has been trained in CRE, in a classroom in a school that is committed to CRE, in a school division that has been documented as CRE by its School Board whose policies reflect CRE principles. Longitudinal study is so important to view the data on how students achieve relative to the CTBS, statistics on retention, graduation rates, age/grade deceleration, percentage of students entering post-secondary education, transitions to provincial schools, participation rates in employment or other training, engagement in lifelong learning opportunities.

Following the development of the cultural standards other guidelines have also been produced to guide culturally responsive schools and School Boards (2002) and inform teacher training (1999) by the Alaska Native Knowledge Network.

**Culturally Responsive School Boards**

Much of the research and development work in reviewing how Indigenous knowledge or culture impacts student achievement revolves around the classroom. However, the institutional framework that is the container for the dynamic process of learning in the classroom is also important in creating a context for learning that is culturally responsive and authentic. Efforts need to include school divisions, school boards and be supported by policy development province wide.

Hampton (1988) developed a set of principles to guide schooling that is directed at building Indigenous identity and affirming Self Government:

- Spirituality
- Service to one’s people and Nation as the purpose of education
- Diversity to meet the standards of diverse communities and Nation traditions
- Culture as a way of being, thinking, communicating, living
- Tradition and transmission of tradition
- Respect in a relationship that is mutually empowering
- History as a true story of loss of the continent, continuing racism and oppression
- Relentless work to gain the best education possible for our students
- Vitality in recognizing the strength of the people and the culture
- Conflict and understanding the nature and workings of oppression
- Place as a sense of territory and land
- Transformation as a commitment to personal and societal change
The Alaska Native Knowledge Network developed the Cultural Standards for School Boards 10 years later as a set of goals for culturally responsive systems. The work of Hampton and the ANKN provide good criteria for school boards and districts to consider as they move toward systemic change in bringing culturally responsive education to all students.

In addition to the work on cultural standards, by ANKN, they produced guidelines that address the role of School Boards in ensuring that a culturally responsive educational environment is provided to students.

The guidelines offer management suggestions to Board Members, administrators, communities and policy makers. There are suggestions for School Board members, local community education councils, School District Administrators, community based and regional Native organizations, Principals and Teachers, schools, State policy designers, educational agencies and the general public.

The guidelines were designed to assist the Board in ensuring that the schools in their regions are reflective of the cultural traditions and knowledge of the Indigenous Nations of the area. Native educators participated in the development of the document and Alaska Native education organizations ratified this work.

This work is an important framework for First Nations to consider developing their own standards especially with a view to the work underway to establish second and third level services in relation to First Nations school authorities or First Nations regional education authorities.

**Culturally Responsive School Divisions**

With great interest in the work being done in Alaska, the Saskatoon Public Schools developed a research team and charged them with investigating international, national, provincial and local site visits to gain insights into the design a model of education that is culturally responsive. Saskatoon Public Schools and the Okiciyapi Partnership defined the urgency of developing a culturally responsive school division. (Developing a Culturally Responsive School Division Final Report, June, 2008)

Their definition of cultural responsiveness is:

- Affirming-Honoring First Nations and Métis knowledge, ways of knowing and being
- Honoring-Elders and traditional knowledge keepers for the transmission of culture
- Holistic-engages the heart, mind, body and spirit of all learners and sees each person's gifts
• Ceremonial-Ceremonies nurture the spirit, provide pride in nationhood, fosters family togetherness, offers guidance in self-awareness
• Healing-schools become centers for cultural continuity, language, learning from place reinforce pride in oneself
• Values based-respect, integrity, belonging, compassion, forgiveness, generosity, wisdom shape relationships and guide teaching and learning
• Symbolic-schools are welcoming and create a sense of pride through artwork, names, symbols representing cultural beliefs and values
• Purposeful-creating a stronger sense of self-worth and connection to community
• Community Based-a true partnership between child, family, school and community
• Inclusive-school nurtures the spirit of belonging, caring, a place for everyone in the circle of life
• Respectful of Cultural Diversity-all cultures should be validated and honored
• Celebration of Life-prayer, ceremony, thanksgiving show appreciation to the Creator and those who came before us

In the work, the process for becoming more culturally responsive was noted as:

1. Create a standard that all schools are accountable to achieve.
2. Reflect and review practices and policies that may impede the work of cultural responsiveness.
3. Create a 5-10 year strategic plan with a strong vision and values to guide the work.

To achieve this work across many schools, it is necessary to deconstruct, reconstruct and construct.

The Mother Earth Charter School opened in Alberta in 2003 as the first Indigenous charter school. At this school, the land is the classroom and the curriculum is based on a visual narrative inquiry format, relating directly to the experiences of students, parents, teachers, administrators and Elders. (Pearce, Crowe, Letendre, Letendre, and Baydala, 2005)

In 1995, the Alaska Rural Systemic Initiative was founded as a 10 year project between the Alaska Federation of Natives, the University of Alaska Fairbanks and the National Science Foundation. (Barnhardt and Kawagley, 2005) It is a cultural responsive systemic project attending to the educational needs of 16 cultural groups in Alaska in 176 schools for 20,000 students most of whom are Native Alaskan.

The Cowichan Valley School District, the First Nations of the region and the British Columbia Ministry of Education combined efforts in an Aboriginal Education
Improvement Agreement in 2001. The agreement promoted culturally responsive schools and building respectful relationships with First Nations and Métis by integrating cultural traditions and practices into the schools. They understood the magnitude of instituting change and elected to build strong relationships of honesty and trust at the outset to weather the tough development issues as they might arise later on.

In looking at culturally responsive school and district wide initiatives, some common findings show the critical importance of”

- Administrators with long standing commitment to CRE, a commitment to the community, high expectations for staff and students, advocacy for staff to try new methods or content in a risk free context at school (McCarty, 1993; Rhodes, 1994)
- Core of local school personnel is also critical, consistent financial support, quality technical support to enable CRE to be firmly established and effective over the long term (McCarty, 1993)
- School climate also highly impacts student success when it is safe, drug free and has supportive staff (Powers, 2006; Powers et al., 2003)

Policy Implications for Culturally Responsive Education

From the guidance of Klump and McNeir (2005, p. 18-19) there are a number of recommendations to be considered in improving the academic achievement levels of Indigenous students that are policy based innovations:

- Diverse curricular materials must be both immediately relevant to and mirror students’ lives and provide entrée into the core subject areas students will be expected to master in later grades
- Educators must pay more attention to the ways colonization, racism, and power matter in educational settings and work towards more effective and longer term pre-service and in-service training that helps educators understand and strategize about their role as agents for social change and greater educational equity
- Federal and state educational policies that are consistent with the federal trust responsibility, tribal sovereignty and self determination
- Funding formulas and guarantees that allow communities, schools and teachers to build students’ multiple literacies
- Locally developed and controlled educational and cultural standards and corresponding forms of assessment
- Schools and school districts that recruit and retain more Indigenous teachers who are members of the local community and have a strong foundation in promising practices for reading and literacy teaching;
collaborations between university teacher preparation programs, tribal colleges and school districts in tribal communities will facilitate this process

Limitations of the Research To Date:

Most of the research on culturally responsive education is descriptive, observational and qualitative. Studies are small and local for the most part and do not include multiple First Nations. Their results have not been replicated in other locations and the methodology to do so is largely unavailable. The research has focused on a specific First Nation. The research has largely been isolated from broader discourses in health, poverty, social issues of food security, safety of communities, social and emotional development, neuroscience on child development, child and youth psychology, teacher professional development and culturally appropriate assessment tools.

Future research should employ experimental research designs to evaluate the interventions as to their effectiveness or weaknesses. Objective data regarding the effects of specific interventions on student academic achievement is required to sustain change. The studies provide insight into the causal links among the variables that can be evaluated in the future. We need to know the key interventions that can be used in frameworks to bring innovations forward in First Nations education.

Potent Research Questions:

We need to know the effects of culturally responsive programming and language immersion on the intellectual development of the child, brain development and potential for academic achievement.

Where should language be placed to be most effective for fluency, reading and writing?

What is high quality teaching and instruction for reading and mathematics within a culturally responsive classroom?

How does local control of a school impact student and parent attitudes about ownership and influence on the educational experience?

How does poverty and trauma affect the genetic structure of the child and set determinants of life’s trajectory that can be associated with early sexualization, substance abuse, brushes with the criminal justice system, mental health episodes and potential homelessness in later life?
What are the characteristics of successful students and how do we encourage character development in this regard?

What are the economic, social and cultural reasons for leaving school from the viewpoint of the students? What changes do youth perceive as necessary for relevancy in education for the new millennium?

What are the appropriate methods for training teachers in a culturally responsive learning system?

What are Indigenous students saying about the kind of teaching, classroom environment and school climate they would like to be a part of in their school?

Where are samples of high quality culture based curricula? What is the curriculum theory for culturally responsive education?

Where are the new funding systems required to develop sustainable programming?

What are the multiple variables that can be examined in the life trajectory of a student who fails in school with an accompanying cost analysis?

What are the school based policies that need to be in place for culturally responsive education?

Are there anti-racist policies in place to protect students, their families and community? What do the studies on racism in the classroom tell us about the academic achievement of First Nations students?

How can we best engage parents, community members and community leaders to support the efforts of culturally responsive education?

What kind of community governance needs to be in place to suitably support culturally responsive education in the schools?

A Research Blueprint is Necessary:

Experimental research is our next step in order to provide valid and reliable evidence that permits conclusions of cause and effect for the many variables in culturally responsive education.

The focus of research for maximum developmental impact for First Nations education should be directed to an educational continuum beginning with maternal infant well-being, early learning, language development, reading skills, ethnomathematics, a framework of standards for culturally responsive education, teacher training for highly qualified educators who specialize in culturally
responsive education, financial support for schools with second and third level services, community control of the education system, culturally responsive assessment tools and culturally responsive policies in administration.

There are three areas according to Brayboy and Castagno (2008) where research and inquiry on culturally responsive education for Indigenous youth would be better served.

“…we suggest ways that issues related to self-determination and tribal sovereignty, racism and Indigenous epistemologies might be integrated into the existing scholarship to advance an even stronger and more nuanced understanding of CRS for Indigenous youth.” (p. 953)

In addition, we need to examine the overlapping fields of mental health and health to garner a full picture of the factors affecting the academic achievement of First Nations learners. From the article by Morris, Crowley, and Morris (2002, p. 33, 34) called, “A Measure of Traditionalism for American Indian Children and Families: Psychometric Properties and Factor Structure” the following guidance is provided:

“The literature indicates that, in comparison to children of other ethnic minority groups, American Indian and Alaska Native children are at greater risk for emotional and behavioral disorders and negative psychosocial conditions such as poverty, family and community violence, substance abuse, and substandard living conditions.” (Beiser and Attnave, 1982; Berlin, 1987; 7; Gotowiec and Beiser, 1993-1994; Manson, Walker and Kivlahan, 1987; U.S. Office of Technology Assessment, 1990)

In addition, there is evidence that the stress of attempting to adapt to two disparate cultures has significant impact of overall mental health (Rogler, Cortes, and Malgady, 1991), drug abuse (Fuertes and Westbrook, 1996), suicide rates (Lester, 1999) and eating disorder symptoms (Perez, Voelz, Pettit and Joiner, 2002).

Conversely, strengthening cultural or ethnic identity may reduce problems such as substance abuse (Gilchrist, Schinke, Trimble and Cvetkovich, 1987), suicide (Lester, 1999), loneliness and depression (Roberts and Phinney, 1999) while enhancing emotional well-being (LaFromboise, Coleman and Gerton, 1993), social adjustment (Coleman, Casali and Wampold, 2001), self esteem, coping ability and optimism (Phinney, Cantu and Kurtz, 1997; Roberts and Phinney, 1997)

Retraditionalization, the increasing reliance on “cultural beliefs, customs and rituals as a means of overcoming problems and achieving Indian self determination” (LaFromboise, Trimble and Mohatt, 1990, p. 637) has been called essential to the revitalization of American Indian and Alaska Native communities.”
APPENDIX ONE: ADDITIONAL STUDIES

Some Further Examples of Studies:

The studies of the effect of traditional culture on academic performance can be placed in two primary categories:

- Culture as a protective mechanism used to guide curriculum (Goddard and Shields, 1997; McCarthy, 1989; Van Hamme, 1996) or culture can help build our understanding on learning styles and behaviours of American Indian children (Hornett, 1990; Hurlburt, Kroeker and Eldon, 1991)

- Traditional culture may contribute to cultural discontinuity in classrooms where Indigenous values, history or worldviews are not respected or included in the programs of study; a conflict ensues where self esteem is undermined and a sense of inadequacy grows in a Euro-American style of schooling (Deyhle, 1992; Hornett, 1990; Sanders, 1987)

Traditional culture is defined using multiple dimensions to describe the depth of its meaning (Zimmerman et al., 1994)

Three dimensions are used:

i) Involvement in traditional activities shows that culture is part of everyday life, a lived experience that determines how one sees the world

ii) Cultural identity is the factor that shows how an individual self concept incorporates the culture

iii) Traditional spirituality is the essential dimension that most clearly defines how knowledge and practice of spiritual ways and values impact both cultural practice and identity.

Zimmerman presented the concept that the degree to which one is embedded in traditional culture is one of a number of resiliency factors that can protect children from negative behaviors leading to drug use, early sexual behaviors, and delinquency (Zimmerman et al., 1994) There are critical implications for policy development and redirecting funding for results based planning when traditional cultures can have such a positive effect on prevention programs, child and adolescent mental health, recreation and education programming.

“The findings support a growing body of work on American Indian cultural tradition that empirically support something that American Indians have known all along: Enculturation (traditional cultures) is a resiliency factor in the development of their children. American Indian nations have been decades ahead of the scientific
community regarding the positive effects of cultural practices and cultural identities for their people.” (Whitbeck, Hoyt, Stubben and LaFromboise, 2001)
(Note: Research funded by the National Institute on Drug Abuse (DA 10049)

Cleary and Peacock (1998) published their findings, “Collected Wisdom: American Indian Education” from interviews with 60 teachers of Indigenous students and confirmed that traditional culture has a positive role, rather than a negative role or no role at all, in developing academically successful students.

In a study of Northern Cheyenne reservation high school drop-out rates, it was found that for girls, “residence in a traditional community and attending Indian schools had a positive effect on school performance which in turn contributed to high school completion.” (Ward, 1994)

There are case studies showing the effect of traditional culture and the academic experiences of American Indian children (Bowker, 1992; Lin, 1987; Marsiglia, Cross and Mitchell-Enos, 1998; Pertusati, 1988).

Also there are small sample studies for reference (Coggins, Williams & Radin, 1997; Sack, Beiser, Clarke and Redshirt, 1987).

Other essays without data (Ledlow, 1992; Sanders, 1987; Van Hamme, 1996) show the discontinuity between American Indian values and socialization and that of the Euro-American classroom. The prevailing theory is that the Indigenous children are held back by their culture whose ideals and behaviors are not consistent with the expectations of the non-Indigenous classroom or non-Indigenous teacher. Those esteemed behaviors among Indigenous peoples include sharing, non-competition, avoiding arrogance, allowing others to go first, measuring success as service to one’s people (Brant, 1990; Hornett, 1990) are in opposition to the Euro-American classroom environment where competition, independent success, and forceful verbal participation are valued.

Huff (1997) referenced a US study of tribally controlled schools, state schools and those controlled by the Bureau of Indian Affairs. “Indian controlled schools succeed because they function with the culture, norms, and traditions of Indian communities and subsequently engage parents as formidable allies in the educational mission.” (p. 53)

Cultural discontinuity has been researched among mainstream and minority groups but little has been written until recently on Indigenous students in North America. (Ledlow, 1992)

Traditional values, cultural identity are resiliency factors that contribute to prosocial behaviors, student well-being, emotional and social competency. A positive cultural identity may contribute to a sense of efficacy and self-esteem that may increase academic success (Hornett, 1990).
For decades the cultures of American Indian Nations have been viewed as problematic in Euro-American classrooms (Dale, 1949; Ebbott, 1985; Sue and Sue, 1990; Weeks, 1992). In 1983, Wise and Miller described the case of a child typically showing American Indian behaviors such as of lack of competitiveness, speaking softly and not attempting to stand out in the classroom. The teacher viewed the child as having problems. The teacher referred the child to a counselor who identified the child as having social anxiety. “Typically, a belief by educators in the fundamental sameness of all cultures is coupled with the assumptions that when there are differences, the Anglo-American way is best.” (p.1)

Success in school means that American Indian children must navigate in two cultures. Studies have showed the negative correlations between the number of years in school and achievement levels of American Indian children (Kayser, 1963; Wax, 1967) “American Indian children function at average to above average levels in the classroom up to grade four (Hornett, 1991) At about grade 4 much that happens in public school focuses on identity formations and social functioning with the mainstream culture. If Indian students are threatened with loss of their culture, this can result in low self-esteem. By the time students are in high school, they are often functioning three years behind the mainstream students. (p.1)

Socio-historical theory contends that a child’s cognitive and social development is determined by the culture of the family and community (Luria, 1971; Rogoff, 1990; Vygotsky, 1978) The theory is that an “individual’s cognitive, social and emotional development as occurring within a present day social context that is anchored in past socio cultural activities and methods of interacting” (Luria, 1971; 1976; Vygotsky, 1978)

Rogoff says, “ Context is not so much a set of stimuli that impinge on a person as it is a web of relations interwoven to form the fabric of meaning.” (Rogoff, 1982, p. 149)

The study used core values that scientists feel represent Indian Nations and a majority of Indigenous American people have in common (DuBray, 1985; Ebbott, 1985; French and Hornbuckle, 1980; Sue and Sue, 1990; Weibel-Orlando, 1991)

Using the results of the research, the list of common values was devised as follows:

i) Sharing-one’s contribution to the group  
ii) other centered-placing the needs of the group first  
iii) harmony with natural world  
iv) non-interference-positive interpersonal relations, discouraging coercion  
v) circular time-seasonal determinants, the time is right  
vi) patience-desire to live in an unhurried manner  
vii) non-confrontive-avoids embarrassment or rivalry  
viii) broad view of the family-relatives in extended families and clans
Studies have agreed that culture plays a significant role in academic success of American Indian students when culture is defined as living in a traditional community, participating in ceremonies, living traditional values and being a member of a strong family. Higher grades in school and lower drop-out rates are have been identified as outcomes of strong cultural knowledge and practice among American Indian students. (Crawford, 1987; Deyhle, 1986; Huffman, Sill and Brokenleg, 1986; Ward, 1994)

In the book called *Culturally Responsive Teaching*, Geneva Gay (2000) asserts that “culture counts” and “is at the heart of all we do in the name of education, whether that is curriculum, instruction, administration or performance assessment.” (as cited in Bennett, 2001, p. 17)
APPENDIX TWO: HAWAIIAN INDIGENOUS TEACHING RUBRIC

“Culture Based Education and its Relationship to Student Outcomes” (Kana‘iaupuni and Jensen 2010, p. 21-24)

In this paper, Kana‘iaupuni and Jensen report on data on culture based education and its impact on student academic and socio-emotional outcomes. Kamehameha Schools engaged in a collaborative study called, “Hawaiian Cultural Influences in Education” from 2005-2007, and began its work to define CRE and its implementation. Five components were acknowledged as language, context, assessment, family and community and content. The Rubric was formed with a set of surveys for teachers/parents/students/administrators to serve as tools for assessing the impact of culture based education strategies.
Table A. Hawaiian Indigenous Education Rubric in Full Detail

<table>
<thead>
<tr>
<th>NONE</th>
<th>EMERGING</th>
<th>DEVELOPING</th>
<th>ENACTING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. LANGUAGE: USE OF HERITAGE LANGUAGE IN TEACHING</strong></td>
<td></td>
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</tr>
<tr>
<td>Critical indicators</td>
<td>I do not have use for Hawaiian language in my class.</td>
<td>I use simple Hawaiian words and/or songs to expose my students to Hawaiian language.</td>
<td>I speak and display Hawaiian language in the learning environment, using phrases and simple language exchanges.</td>
</tr>
<tr>
<td>a. Integration of Hawaiian language in class</td>
<td>I have no Hawaiian language materials or resources in my classroom.</td>
<td>I occasionally use Hawaiian language materials in my teaching.</td>
<td>I use Hawaiian language materials in my teaching fairly often.</td>
</tr>
<tr>
<td>b. Hawaiian language materials and resources (e.g., books, electronic media, audio/visual technology, kūpuna, community members)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>PHILOSOPHY ON LANGUAGE</strong></td>
<td>Hawaiian language is less relevant to core academic subjects like math, English, science, and social studies.</td>
<td>I believe it is important for all students to be exposed to Hawaiian language.</td>
<td>My teaching is grounded in the belief that all students should have a basic level of competency in the Hawaiian language.</td>
</tr>
</tbody>
</table>
### II. ‘OHANA AND COMMUNITY INVOLVEMENT

<table>
<thead>
<tr>
<th></th>
<th>NONE</th>
<th>EMERGING</th>
<th>DEVELOPING</th>
<th>ENACTING</th>
</tr>
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<tbody>
<tr>
<td><strong>Critical indicators</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a. Integration of ‘ohana/ community in curriculum</td>
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<tr>
<td>b. Communication between ‘ohana and teachers</td>
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<tr>
<td>c. Relationship between ‘ohana and teachers</td>
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<tr>
<td>Families are so busy that I don’t expect them to actively contribute to my class or my students’ learning.</td>
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<tr>
<td>Most of my contact with students’ families occurs through open houses and school events.</td>
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<td>As a teacher, my relationship with students does not extend beyond the classroom.</td>
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<tr>
<td>I provide students’ family members with information about ways they can support their child’s learning at home.</td>
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<tr>
<td>I contact family members (e.g., by phone, in person, by e-mail) when their children are having problems in my class.</td>
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<tr>
<td>I talk with my students about their home lives but maintain appropriate physical and emotional boundaries.</td>
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<tr>
<td>I develop homework assignments and activities that require the active participation of family members.</td>
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<tr>
<td>I frequently contact family members about a variety of student matters, both good and bad.</td>
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<tr>
<td>I invite students’ family members into the learning environment to create a sense of ‘ohana.</td>
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<tr>
<td>I integrate ‘ohana, community members, and kupuna into the learning experience.</td>
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<tr>
<td>I work closely with ‘ohana to support their children’s growth and success in and out of school.</td>
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<tr>
<td>I work hard to get to know my students, their families, and their community through interactions outside of school.</td>
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</table>

### III. CONTENT: CULTURE- AND PLACE-BASED

<table>
<thead>
<tr>
<th></th>
<th>CULTURE-BASED</th>
<th>PLACE-BASED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical indicators</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Curriculum</td>
<td>I use vendor-developed textbooks and materials for my class to ensure that the content and quality meet state standards or other benchmarks and guidelines.</td>
<td>I use textbook-based lectures and discussions in my class.</td>
</tr>
<tr>
<td>b. Content</td>
<td>I use readily available curricula and materials and try to interject Hawaiian or “local” examples where relevant.</td>
<td>I use hands-on learning activities outside the classroom.</td>
</tr>
<tr>
<td></td>
<td>I use culturally appropriate curricula and materials that include some Hawaiian cultural content.</td>
<td>I relate my course-work and content to the local (but not necessarily Hawaiian) community and my students apply what they have learned to community settings.</td>
</tr>
<tr>
<td></td>
<td>I embed Hawaiian knowledge, practices, values, behaviors, language, and spirituality into the content and materials of my class.</td>
<td>I use the community as a setting for student learning that is responsive to community needs and grounded in the Hawaiian knowledge, practices, and history associated with a place.</td>
</tr>
<tr>
<td>PHILosophy on Culture in Class</td>
<td>None</td>
<td>Emerging</td>
</tr>
<tr>
<td>-------------------------------</td>
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<tr>
<td>I try to keep my class neutral and free of cultural references so that no students feel left out.</td>
<td>I design my class to support the diverse cultural backgrounds of my students.</td>
<td>I incorporate Hawaiian culture in my teaching to better engage students.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>IV. Context</th>
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<tbody>
<tr>
<td>Critical Indicators</td>
</tr>
<tr>
<td>a. Culturally grounded context</td>
</tr>
<tr>
<td>a. Culturally relevant community of learners</td>
</tr>
<tr>
<td>b. Community well-being</td>
</tr>
<tr>
<td>PHilosophy on the Role of Teacher</td>
</tr>
<tr>
<td>NONE</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>INDIGENOUS ASSESSMENT</td>
</tr>
<tr>
<td>Critical indicators</td>
</tr>
<tr>
<td>a. Demonstrate knowledge/skills</td>
</tr>
<tr>
<td>b. Application</td>
</tr>
<tr>
<td>c. Value to community, culture</td>
</tr>
</tbody>
</table>
APPENDIX THREE: NEGATIVE FINDINGS

Negative Findings

One study in Alaska showed that high levels of usage of a traditional language in childhood was associated with a higher incidence of dropping out. (James, Chavez, Beauvais, Edwards and Oetting, 1995) Reasons for this finding may relate to the positioning of English in the program as a dominant language while learning their heritage language may have been cursory. Another factor may have been the potential lack of support of the heritage language or the culture of the students by the teachers and school administration. A lack of parental support for the school or the lack of community support of the school should also be considered in these findings.

A further study in Alaska stated that rural students living in relative geographic and cultural isolation were disadvantaged in developing proficiency in English and educational achievement. (Travis, 1979) The early study focused on a few variables and did not take into account social or economic factors impacting the lives of the students.

Willeto in 1999 found no support for the idea that traditionalism including Navajo language usage had a negative effect on school achievement for Navajo high school students. (p.13) Retaining traditional cultural values or ways did not hinder students’ academic progress. Willeto studied 451 Navajo students in 11 schools on the reservation and found that students participating in traditional activities and speaking their language were just as successful in school as their counterparts who were less able to speak the language and appeared more assimilated.

In 1981, Kerbo examined cultural factors and academic success, concluding that the best predictor for academic success for Native American college students was the degree of identification and social integration with White people.

For the most part, most studies confirm the benefits of culture and language as community based foundational supports to the education system. There is much more study required to understand the effects of social and economic factors as well as cultural and linguistic factors on the achievement levels of Indigenous students.
CULTURALLY RESPONSIVE RESEARCH PARADIGMS

Reclaiming Our Sovereignty

One of the most visible outcomes of the decolonization era has been the reclaiming of sovereignty by First Nations over a whole range of issues influencing and determining lives and futures. The work in evaluation has been one of the prime areas where First Nations have laid claim to the intellectual property rights of Indigenous knowledge, cultural property rights, and have established ethical research standards involving reciprocity and responsibility.

Stewardship agreements now govern research partnerships as to participatory research, culturally respectful methodologies, ownership of data, access to data, location of data storage, reporting and feedback to the First Nations, including the use of data and findings that benefit First Nations. Many First Nations have on their community web sites, the ethical research standards for evaluators from any institution to peruse before approaching the Community Research Council for approval to work in the First Nations territories with their residents.

To add to the existing knowledge base, the consortium of Maori and Hawaiian evaluators has developed the Evaluation Hui, an Indigenous framework guiding evaluation in Indigenous communities.

The Principles state that evaluations of projects in Indigenous communities must:

- Be viewed and implemented in the context of a specific place, time, community and history
- Be community focused and initiated based on its stated needs, findings respectfully communicated first to the community and then to funding agencies
- Promote and practice an Indigenous worldview, epistemology, spirituality, values, identity
- Facilitate complementary knowledge and skill sets that embrace both cultural and academic perspectives in teams of Indigenous people with both types of knowledge (Kawakami, Aton, Cram, Lai, Porima, 2007, p.319, 332, 334)
- Multiple measures of data for multiple contexts that can be environmental, health related, political, economic, educational or cultural in nature

The overarching concern of evaluators is to both meet the needs of program participants and funding agencies and also set the framework for the evaluation within the context of the culture. *The Principles and Guidelines for the Protection of the Heritage of Indigenous People* (Daes, 1995) states that, “The effective protection of the heritage of Indigenous peoples of the world benefits all humanity. Cultural
diversity is essential to the adaptability and creativity of the human species as a whole.”

Linda Smith wrote seminal works on decolonizing research methodologies for Indigenous peoples arguing that untangling the negative effects of colonization means decolonizing research methodologies. (Smith, 1999) “By decolonizing evaluation methodologies, we aim to recenter ourselves within our own lands. From here we challenge the viewpoints of those outside of our communities who see us as less than a “norm” that is based within their worldview rather than ours.” (Pihama, Cram and Walker, 2002; Porima, 2005)

“Our very survival relies on the acknowledgement, at the very least by our own peoples, that our worldview, culture, and way of being are valid. When this acknowledgement comes from within the context of evaluation, we increase the chances that the evaluation methods used will be decolonized.” (Kawakami, Aton, Cram, Lai, Porima, 2007, p. 323)

Much of the research underway in the period of global recession has as its focus, closing the gap in Indigenous disadvantage in comparison to the mainstream population through a narrow lens of cost benefit analysis. Indigenous peoples can become “subjects” if the research is done primarily to assess the impact of government policies on the economic and social indicators of well being or student success in education. Data and its conclusions may be limited to student test scores, or credits achieved within a benchmark period, attendance records, detention lists, early school leaving or financial costs.

Of particular note is the danger of use of the deficit model where Indigenous people or their communities are seen as the “problem” or where evaluations are occurring, yet the Indigenous people are not involved in decision making. “All too often we continue to be constructed as the “other,” then compared to a nonindigenous norm and found to be wanting or judged to be failing to reach acceptable standards.” (Cram, 1997)

In addition, “We assert that many evaluations conducted following NCLB regulations are culturally and technically invalid.” (Kawakami et al., 2007, p. 328)

Some indicators of violations of culturally respectful methodologies include:

- Spiritual perspectives were not considered valuable
- Elders were not considered as repositories of knowledge
- Protocols for proper communication with Indigenous people were not considered or followed
- Benefits of the research to the community were not readily visible
- Community involvement in the decisions to initiate research and plan the design of the research were not followed
• Community voice was not heard in ensuring the data collection process followed cultural norms and was respectful
• Evaluations conducted for external agencies whose value framework was not aligned with community values

New research paradigms for community planning place value on language, relationships, cultural identity, cultural and historical context and servicing the needs of the Indigenous community. The new models take a more expansive view of valued outcomes such as cultural self-esteem, spiritual growth, or other culturally vital impacts. “Identity is central to the concept of value in Kanaka Maoli and Maori communities.” (Porima, 2005)

“Maaka (2004) described the essential connectedness of individuals to their land, their family and ancestors, and their language. Identity is built on perspectives that value proper relationships with spiritual power inherent in every location, ancestral lineage, living family members, and obligations to the collective good of the community.” (Kawakami, 1999; Kawakami and Aton, 1999; Meyer, 1998, 2003; Osorio, 2004; Kawakami et al., 2007, p. 331)

“Culturally value added effects” that benefits the community or strengthens it become a critical part of the methodology through an Indigenous lens and go beyond conventional constructs. Multiple methods should be used in the evaluations to capture the facets of spiritual, historical, social, cultural, cognitive and theoretical sources of information. Data sets, reports, cultural and ceremonial events of significance all contribute to creating a picture of the context for the evaluation.

The Framework for Indigenous Evaluation Practice in the figure on page 4 originates in the work of Kawakami et al, (2007, page 337) and is a very good example of the differing goals and methodologies of western-based research principles compared to those of Indigenous researchers. This framework seeks to access deep data that will provide a complete picture for an expansive new paradigm.

“We have lived under the gaze of newcomers who have evaluated us within their own belief systems, only to find that we are not only different but also deficient compared to their cultural norms. However, this gaze has come to represent a truth about us, a truth that is not of our own making. It is appropriate that the gaze be returned now and that we do our own gazing.” (Kawakami et al., 2007, p. 329)
<table>
<thead>
<tr>
<th>Functions</th>
<th>Methodology</th>
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</thead>
<tbody>
<tr>
<td>Purpose and goals</td>
<td>Set by community agenda.</td>
</tr>
<tr>
<td>Driving question</td>
<td>Has the community been affected in a positive way as a result of the</td>
</tr>
<tr>
<td></td>
<td>program/project/initiative?</td>
</tr>
<tr>
<td>Methodology</td>
<td>Quantitative, qualitative, and more.</td>
</tr>
<tr>
<td>Data</td>
<td>Spiritual, cultural, historical, social, emotional, cognitive, theoretical,</td>
</tr>
<tr>
<td></td>
<td>situated information.</td>
</tr>
<tr>
<td></td>
<td>Graphics, narratives, culturally created manifestations (olèì [chant], hula)</td>
</tr>
<tr>
<td></td>
<td>“valid” to that place.</td>
</tr>
<tr>
<td>Analysis</td>
<td>Cultural and environmental significance.</td>
</tr>
<tr>
<td>Format for findings</td>
<td>Narratives, mo’olelo (stories), relationships, photos, DVDs, CDs, videos.</td>
</tr>
<tr>
<td>Conclusions and recommendations</td>
<td>Shared among project, community, evaluator, and funder.</td>
</tr>
<tr>
<td>Impact</td>
<td>Value added, lessons learned, clarity, empowerment.</td>
</tr>
</tbody>
</table>
Research Methodologies:

Research using mixed methodologies is essential to studies on the experimental effectiveness of culturally responsive education. Exploratory research can use elements of First Nations’ cultures to form the basis of study in natural experiments such as cultural communication styles within the First Nation that can determine the effectiveness of instructional styles in the classroom.

Statistical analysis of data from national studies can provide samples for study from birth to grade 12 from federal and provincial sources. Canadian sources can be compared to those in the US from the National Assessment of Educational Progress, Early Childhood Longitudinal Study -Kindergarten and the Early Childhood Longitudinal Study-Birth that document Indigenous data.

Comparative analyses of how other countries define CRE and its educational outcomes would be beneficial to support research work in Canada.

The development of a culturally responsive research methodology and paradigm with benchmark standards, methods and assessment tools that can be used across cultures is greatly needed. Defining appropriate measures of effectiveness of culturally based education will assist in reporting the results.


In 2004, Executive Order 13096 of President Bush stated the intention to improve the educational achievement and academic progress of American Indian and Alaska Native students. The US Department of Education was charged with developing and implementing a research agenda to include an evaluation of “the role of Native language and culture in the development of educational strategies.” The task order requested a literature review of theories and empirical evidence related to Native culture and language in education; to assess the feasibility of conducting experiments in multiple locations to determine program efficacy; and to produce a research design. The Northwest Regional Educational Laboratory engaged in work to develop research design options to look at the effectiveness of culturally based education.

Four design options were offered for consideration:

1. Randomized Control Trials
   
   - Use two clusters of culturally responsive sites with language immersion programs an language instruction classes
   - Each cluster is implemented in four schools
Randomly assign students to treatment and control groups particularly at
Kindergarten where a lack of Native language speakers makes it impossible
to serve all students (parents or school may object to random assignments to
treatment or control options)
Randomized assignment will support causal inferences of the interventions
Option will likely result in small scale studies involving randomized
assignment of students to treatment and control options at selected schools
When small studies are done, a meta-analysis should be conducted to assess
the overall efficiency of each cluster of culturally responsive interventions
across different school contexts

2. **Purpose Built Intervention Study**

Demmert and Towner identified six elements of culturally based education
Unlikely that any one intervention has maximized the simultaneous
operation of all six elements
Design an intervention to maximize all six elements  (CREDE has used this
method in the past (Doherty, Hilberg, Epaloose, Tharp, 2002))
There are sufficient schools willing to randomly assign students to control
and intervention groups
Students in each CBE school will be assigned randomly to teachers within
each grade level; student outcomes will be analyzed relative to teacher
fidelity of intervention scores measured by a rubric of the six elements
Some of the six elements are school wide so no class level variance should be
present, in other cases, teachers will display variance of fidelity as they vary
in their use of CBE techniques and in their capacity
The professional development of teachers in this option would demand more
years to prepare for such a study
This kind of study would test the potential efficacy of CBE incisively

3. **Matched Comparison Groups**

This option uses schools as the unit of study in a quasi-experimental design
of aggregate measures of academic achievement is the dependent variable
A key requirement of this study is to identify for each of the selected schools
a comparison schools that does not offer any CBE interventions
The comparison school should have demographic characteristics similar to
those of the CBE school including poverty indicators and percent of
Indigenous enrolment
A set of matched comparison schools will be identified for purposes of
comparing academic achievement status against the CBE schools
To strengthen the design the independent variable (6 elements) can be
measured by a rubric in both treatment and non-treatment schools to
address internal validity issues such as contamination of matched
comparison schools
• Limitations exist on establishing a causal link between dependent and independent variables

4. Implementation-Impact Correlational Analysis

• Use a CBE implementation measure as the independent variable instead of the usual treatment-control dichotomy
• CBE treatment will be defined as a continuum to be measured by implementation rubrics based on the 6 elements
• No random assignment of students is necessary
• Language immersion programs and language instruction classes at 8 sites are the study sample using classrooms as the unit of analysis
• This option has the advantage of being the least intrusive
• Depending on validity of the implementation rubrics the results of study, while correlational in nature, can be instructive for program improvement
• The option however, will require study of internal validity as well as the validity of the implementation rubrics
• Causal inferences are more difficult to make on the efficacy of the CBE interventions

Each of the four options should take a longitudinal growth curve model to track academic achievement in math and reading for 3 years using data collected at three points during the year. (23-25)

Research on the Cost Effectiveness of Culturally Responsive Education

Evaluation models should also involve cost analysis for decision makers who must set the course in strategic planning over the long term. An example of how Kamehameha Schools in Hawaii views the cost benefit of its multifaceted programming and services is offered as an example of how evaluation questions can shape educational investment to maximize student outcomes and create programs of cognitive excellence within a cultural framework.


The complex array of educational programs offered by Kamehameha Schools is undergoing an analysis within the Impact-Cost Structure Initiative to assess the limitations and strengths of the programming for decision-making on the optimal use of resources. The study is part of a long term strategic plan for KS.
The work shows a combination of methods used to gather information about impact, reach and cost to develop a comprehensive picture of effectiveness and efficiency in achieving KS goals:

- **Cost Effectiveness**-Which alternative creates the greatest impact for a given cost using a single measure of effectiveness? Example: What is the impact of a one year vs. two year preschool program on student vocabulary scores at exit from pre-school?
- **Cost Utility**-Which alternative creates the greatest impact for a given cost, using multiple measures of effectiveness? Example: What is the impact of a one year vs. two year preschool program on student readiness for Kindergarten at exit from pre-school, as measured by cognitive and social skills?
- **Cost Benefit**-Are the benefits of an alternative greater than its cost? Example: What is the financial return on investment for every $1 dollar spent on preschool education?
- **Cost Feasibility**-Can an alternative be carried out within the budget? Example: What are the projected costs of providing needs-based child-care assistance for all single parents receiving scholarships through the Hana Lima Program?

A system wide view is necessary to maximize the value of the results. The questions asked in the evaluation will determine the approach taken. In the case of KS, the cost utility and the cost effectiveness approaches were most commonly used to assess cultural engagement, civic engagement and educational engagement.

Models have been developed for aggregating costs that are direct costs, partially loaded (includes some administration fees) and fully loaded, including timelines for deliverables and phasing for each of the domains. A program inventory has been completed in 2010 and three literature reviews are underway to ensure the factors used in the analyses are research based drivers for each domain of impact.

**Important School Based Research Topics:**

1. **Target language and literacy skills in Kindergarten using culturally responsive curriculum.**

   There is a need for research validated early language instruction that is culturally rich in content and culturally responsive in instruction to improve student outcomes.

   *(Effects of a Culturally Responsive Speech and Language Intervention for Students of Indigenous and Non-Indigenous Heritage, McIntosh,*

Two fundamental factors impacting language and literacy skill development:

(a) Improving Critical Academic Skills such as Language and Communication Skills

- Language skills are predictors of student success (Coyne, Kame‘enui, Carnine, 2007)
- Early language intervention-early literacy language skills, vocabulary knowledge to gain meaning from oral language exchanges and written text
- Students with vocabulary deficits are at risk of future reading problems related to comprehension (Coyne, McCoach, Kapp, 2007)
- Strong readers in Grade One have 87% chance of staying strong readers in Grade 4 compared to poor readers who have 88% chance of remaining poor readers (Juel, 1988)
- Early intervention for students at risk of future learning problems can begin in Kindergarten to ensure all students become literate and experience school success (Daly, Chafouleas and Skinner, 2005; Foorman, Breier and Fletcher, 2003)
- Components of effective early language instruction include explicit and systematic instruction, integrating spoken language with writing and reading, direct instruction with vocabulary and indirect exposure through reading and oral listening activities (National Reading Panel, 2000)
- Oral language expressed through stories help young readers gain vocabulary, print awareness and comprehension skills (Coyne, Simmons, Kame‘enui, Stoolmiller, 2004; Castellano, 2008)

Related findings from other sources:

- Indigenous children benefit from phonics instruction when culturally meaningful materials are used (Tharp, 1982; Anderson and Watts, 1996)
- A process approach to reading and writing is efficacious (Au and Carroll, 1997)
- Longitudinal studies have shown that children with reading disabilities never catch up and the longer one waits, the more difficult it is to initiate changes
- Reading is the gateway to success
- Factors affecting reading ability are motivation, neural and biological factors, economic disadvantage, cultural and linguistic diversity in bilingualism and multi-lingualism
- Major problem in teaching reading are the initial gaps; programs are needed to address the gaps
• Studies are needed to document student performance in Indigenous language education to examine Indigenous language fluency, English language competencies and reading comprehension
• Indigenous languages with their clear link to culture should be examined carefully to determine if it is being taught in an optimal pedagogy and when English should be introduced at the most advantageous grade level; studies can include differing pedagogies for language, teacher preparation, community context, classroom environment, assessment of language abilities
• Studies of attitudes to language immersion programs by parents and community members would yield data on the influences of community attitudes to Indigenous language instruction

(b) Culturally Responsive Curriculum

• Based on the principle that “all students can excel in academic endeavours when (a) their culture, language, heritage and experiences are valued and used to facilitate their learning and development; and (b) when they are provided access to high quality programs, services and supports.” (Klingner et al., 2005)
• Indigenous approaches to learning can be incorporated into instruction or pedagogy (Canadian Council on Learning, 2009)
• Access to Elders holding traditional knowledge provides meaningful context for learning for Indigenous students (Chief Atahm School, Kawenniio School, Akwesasne Freedom School)
• Teaching language fluency increases self-esteem and cultural identity as well as connecting students to the Indigenous community (Tulloch, 2008; Piegan Institute, Nizipuhwahsin School)
• Baydala et al., (2009) found in their study that of Indigenous students in Grades 1-8 that incorporating culture and language in to the development of leadership, social skills and study skills resulted in increased academic success and sense of identity
• Culturally responsive teaching style such as instant feedback, informal participation structure, mutual participation of teachers and students, co-narration, volunteered speech, lack of penalty for wrong answers (McCarty et al., 1991; Tharp, 1982; Au and Carroll, 1997)
• Pedagogy that stresses child/adult interactions based on traditional cultural characteristics of communication (Window Rock Unified School District)
• Curriculum based on traditional cultures recognizing Indigenous spirituality (Punana Leo School, Hawaii, founded in 1983)
• Strong parent and community relationships, partnering with Elders in educating children
• Use of the knowledge of the land, history of the people, use of social and political values of the community

- Testing instruments need to be developed that enable teachers to access Indigenous students in their Indigenous languages to know if Indigenous students require placement in special education and to deal with over referral of students in special education (US 79,000 Indigenous students of a population of 500,000 American Indian/Alaska Native students in 2000/01 school year)
- Culturally responsive assessment tools are needed to distinguish among psychological, social, health, economic or linguistic variable that affect student learning
- Identify gifted/talented students, accurate identification of learning disability, identification of special needs and early intervention, service provisions required
- Research is needed to study the effects of multi-generational trauma on the development of the infant, toddler and child and the effects of trauma on cognition, effects of early trauma on life trajectory for sexualized behaviour, substance abuse, criminal involvement, mental health, homelessness
- Subsequent research is required to design and implement special intervention programming for children suffering from trauma and poverty; understanding the neuropsychological effects of trauma on cognition, learning disabilities, behaviour problems
- A major focus is needed for creating culturally and linguistically responsive tools for the measurement of cognitive development, monitoring student progress across subject areas, language development and overall academic achievement that also stand alongside of government academic standards
- Government standardized testing and assessment measures, using data and interpreting results for Indigenous populations should also take into account the First Nations academic standards, classroom instruction and assessments

3. **Influence of Cultural Discourse and Interaction Patterns on Language Learning to Increase Academic Performance.**

- Kamehameha Early Education Project in Hawaii-work done by Cathy Au on discourse and cultural interaction in reading programs in Grade 2 showed high degree of interaction when the talk story lesson mirrored interaction patterns in the children's culture of the Hawaiian community and higher levels of student reading achievement on measured tests; high levels of engagement among Navajo students when the teaching style used an inquiry curriculum based on clan systems, kinship, relationships in humanity and in the natural world (McCarty, 1993)
- Research should be organized on a First Nations community's communication styles can be used in classroom pedagogy
4. **Research on Culturally Effective Pedagogy for Professional Development**

- CREDE has five principles for teaching that show higher student achievement levels, greater student satisfaction and higher student engagement – joint productive activity, language and literacy development, higher level thinking, context or making meaning, use of instructional conversation, modeling or demonstration and student directed activity
- Research on how these standards can be applied to Indigenous pedagogy for new dynamic instructional styles should be done
- Professional development for teachers is a necessity to ensure the efficacy of instruction for culturally responsive education has a set of standards, methods and evaluation
- In order to research the effectiveness of culturally responsive education, teachers have to be prepared to reliably implement CRE so that research teams can assess the fidelity of implementation across classrooms and schools
- Research is required to design teacher pre-service and in-service training to include cultural competency training, benchmarks for teacher assessment, laddered training opportunities to deepen knowledge and its application in the classroom
- A definition of culturally based education is needed for research purposes and used consistently across studies-domains of childhood and adolescence based on traditional knowledge should be developed and related to current knowledge of child development science-this comparison may initiate further experimental studies
- Research should also be conducted on how technology can contribute to culturally responsive instruction

- Reference; “Teaching Transformed” (Tharp, Estrada, Dalton, Yamauchi, 2000)

5. **Self-Concept/Identity/Self-Reflection**

- Study the importance of motivation and its links to achievement
- Study the effects of informal learning on student performance
- Research is needed to develop tools for teachers to do self-reflection for cultural bias, for schools to self-assess to determine if they are culturally responsive to First Nations (some examples exist in the field of health in the US as a starting point for organizations to self-examine their cultural responsiveness)
- Mental health studies interfacing with education that will show youth attitudes to school, risk factors for youth, youth emotional development, youth perceptions and ways of thinking
• Research is needed to document the failure of assimilative models of education in current use to make way for culturally responsive education

6. **International Sharing of Promising Practices**

• Develop a network of researchers, evaluators nationally to communicate and collaborate to strengthen the research and to maximize the potential for data comparison, replication and sharing of results
• Integration of research findings, approaches to improve practice
• New measures, new interventions that are culturally appropriate
• Collaborations among researchers to design and conduct research
• Foster an academy of a new generation of researchers who are able to provide the Indigenous cultural perspective as well as having academic credentials
• Publicize the evidence from innovative and successful programs of high performing Indigenous students
• Strengthen early learning and parent education
• Ongoing professional development for teachers and administrators

**CULTURAL NEUROSCIENCE**

**A Multi-Disciplinary New Field of Study**

The field of cultural neuroscience is an emergent discipline with new tools combining the fields of psychology, anthropology, genetics and neuroscience to address old questions about the cultural and biological influences on human behavior. The term was developed by Dr. Joan Chiao of Northwestern University and is so new that virtually no longitudinal studies have been done to examine the results of cultural exposure although we know that culture influences psychological processes and behavior. (Kitayama and Cohen, 2007). We also know that 70% of genes express themselves in the brain. (Hariri et al., 2006)

The nascent field seeks to describe the interactions among mind, genes, culture and the functions of the brain. Cultural neuroscience explores the bidirectional interaction of cultural environment and genes by integrating theories and methods from neurogenetics (Canli and Lesch, 2007), cultural psychology (Kitayama and Cohen 2007) and neuroscience (Gazzaniga et al., 2002). Questions in cultural neuroscience involve asking how cultural traits (practices, values or beliefs) affect behavior and neurobiology (genetic and neural processes).

Cultural neuroscience looks at how cultural traits and cultural transmission may affect cognition and other psychological processes and neurobiological processes. Pioneers in this field include Han at Peking University, Kitayama at the University of Michigan, Chiao at Northwestern University and Ambady at Tufts University.
In 2008 Han and Northoff stated that the goal of cultural neuroscience should determine which neural elements of human psychology are culture sensitive and which are culture invariant. The use of “cultural mapping” shows the extent to which cognitive processes are related to the cultural environment.

Ambady and Bharucha in 2009 suggest that an additional goal of cultural neuroscience is the attempt to determine the universals or differences within cultural mapping. They identify three sources of culture mappings:

1. Genetic commonality or difference
2. Cultural learning assisted by brain plasticity to exposure or experience
3. Degree of similarity between cultural environments such as stimuli and pattern structures

They suggest a framework for cultural neuroscience with cultural mapping that shows the mapping of function from patterns characteristic of cultures to their neural processing as well as source analysis to determine the sources of commonalities and differences that will provide new knowledge in cognition and social psychology.

According to Chiao (2009), “…cultural psychology has made major advances in identifying cultural traits that characterize the diversity in social groups around the world as well as articulating the criteria for creating culturally appropriate behavioral measures that ensure the psychological phenomena of interest is testable in people of all cultures.” (Kitayama and Cohen, 2007; Norenzayan and Heine, 2005)

However, Chiao warns that bias occurs when theories, research designs and experiments are done in primarily western industrialized nations leaving a large empirical gap in understanding how diverse cultural environments affect the human mind, brain and behavior. “Within the field of psychology, 95% of psychological samples come from countries with 12% of the world’s population. (Arnett, 2008) In the field of human neuroimaging alone, 90% of peer reviewed neuroimaging studies come from western countries (Chiao, 2009)

The new field of epigenetics (altering gene function without altering DNA) has found that environmental influences can turn genes on or off, to modify their expression up and down like a volume control.

Michael Meaney of McGill University has conducted landmark animal studies finding that reduced maternal care affected how certain genes in the offspring expressed themselves. Matthews of the University of Toronto and Meaney of McGill have collaborated to find out how the early environment, including maternal behavior can affect child development through a large scale multi-disciplinary study following mothers in Ontario and Quebec. They are joined by Alison Fleming, Psychology at University of Toronto whose interest is in how a new mother’s own early life
experiences interact with her genes to influence her parenting style. Researchers are looking at how genes and environment work together to influence a child’s life.

Jennifer Jenkins, a developmental psychologist at OISE is studying how family relationships interact with various genes to affect the development of the child. Evidence suggests that the family environment can affect not only how secure a child feels, but also the propensity to develop diabetes or obesity.

Carl Corter at the Institute for Human Development and OISE researcher, is dedicated to a study of self-regulation including self-discipline, perseverance, emotional control as predictors of later life health, income, involvement in crime or drug dependency. Three year old children who had low levels of self-control were significantly more likely at age 32 to be drug dependent, financially struggling, or convicted of a crime. (Motluk, 2011, p.29)

All of these findings are yet to be fully tested in First Nations contexts. There is rich opportunity for research partnerships to form with those in the field and those external to Canada who have laid some groundwork already.

**FUNCTIONAL IMAGING TO MAP NEURAL PROCESSES**

Neuroscience has been revolutionized by tools that map psychological and neural processes showing degrees of spatial and temporal resolution. (Gazzaniga et al., 2002; Handy, 2005; Heeger and Ress, 2002) Tools such as MRI, PET, TMS, MEG, or ERP can assist in education to separate reading disability of a congenital form from reading disability of an environmental type where there is a tendency in a population of children to misdiagnose. The tools can also assist in developing programs of instruction/remediation to help children progress to reading accuracy and fluency. It is best to administer the tools during times when students are awake and performing mental tasks.

(PET- Positron Emission Topography, ERP-Event Related Potentials, MEG-Magnetoencephalography, TMS-Transcranial Magnetic Stimulation)

The MRI or magnetic resonance imaging can be used as a tool for neurobiological study of language learning and reading or dyslexia or other forms of reading disability. This tool detects the flow of oxygen through the soft tissues of the brain and is non-invasive. As a result of MRI findings, there is growing consensus that poor readers have difficulty in phonological processing from decreased activity in the left tempo-parietal cortex.

Reading makes use of brain plasticity. When one learns to read, a large portion of the cortex becomes trained in “print to speech” translation and as both print and speech become integrated in the skilled reader, they also become housed in proximity in the brain. As children become proficient readers, they show activity in left ventral cortex and decreased activity in the frontal lobe of the brain and right
hemisphere. Skilled readers in any language develop pathways in the cortex enabling them to learn to read in any language.

Reading impaired children have not built these circuits but develop altered circuits and show increased activity throughout the whole brain.

**INTERVENTIONS**

“Three principles from brain research; emotional safety, appropriate challenges and self-constructed meaning suggest that a one-size fits all approach to classroom instruction teaching is ineffective for most students and harmful to some.” (Tomlinson, 1996)

Adele Diamond reported in Science, Nov. 30, 2007 that a pre-school program using dramatic play, visual aids and peer interaction during reading and math instruction to teach children with ADHD important cognitive and social-emotional skills had a powerful effect on enhancing their ability to screen out distractions, to resist responding impulsively to a question and to think creatively and reflectively (Diamond et al., 2007)

In the Journal of Educational Leadership-How The Brain Works, Wolfe and Brandt (1998) have co-authored the article, “What Do We Know From Brain Research?” assert that, “...our environment, including the classroom environment, is not a neutral place. We educators are either growing dendrites or letting them wither and die. The trick is to determine what constitutes an enriched environment. A few facts about the brain’s natural proclivities will assist us in making these determinations.”

Pat Wolfe (2001) discussed how neuroscience can be applied to the classroom and offered 5 guiding principles:

1. Experience sculpts the brain. Students learn better by doing than by reading about it. Doing it changes the brain.
2. Information is not stored in a single place in the brain but comes into the brain and is deconstructed by visual, aural, emotional and placed in different locations but hooked together by neurons. When we remember, we have to reconstruct.
3. Memory is not static but static and decays rapidly. The brain is programmed to forget those things not necessary for survival.
4. Two types of memory: Procedural memory does not involve conscious thought like driving a car, riding a bike and is strengthened by rote drills; the declarative memory is what we know and is, as semantic memory, strengthened by rehearsal strategies.
5. Emotions are a primary catalyst in the learning process so that teachers should ensure a physically and psychologically safe classroom for high motivation levels in a vigorous curriculum.
(For First Nations students we would add that the classroom should also be culturally safe.)

Pat Wolfe (2001) also offered praise for Fast ForWord, a computer game that begins at the rate that the child’s brain processes phonemes and moves the child forward bringing them eventually up to the regular rate. The game is a result of the research at Tallai and Miller at Rutgers University and Merzenich and Jenkins of the University of California at San Francisco who discovered that some children’s brains do not process phonemes fast enough leading to reading difficulties.

Reading interventions applied intensively can have a positive effect by driving plasticity of the brain in children with reading disability. A study in Hoskins Laboratory by Shaywitz and Shaywitz showed imaging studies of the brains of individuals with dyslexia where different parts of the brain were used when reading.

Bharucha from Tufts University brought the findings of cognitive science and neuroscience into the classroom in a discussion called, “Cognitive Dilemmas in Higher Education” (2008). The discussion around instructional methodology strongly suggested present methods of teaching subjects in a concentrated time frame on specific content and sequenced is not the most effective pedagogy. Mixing up material and subjects, approaching problems or theses from multi-disciplinary angles and using procedural knowledge help students retrieve material from memory throughout a lifetime and it is retrieved automatically as in Pat Wolfe’s discussion previously. Interwoven themes of learning used across subject areas and in varied learning contexts over time are more effective than blocks of concentrated material. Concentrated learning appears to yield better performance but the improvement is illusory and fleeting over time as the early positive effect is removed. Knowledge stored in the brain and if it is related to survival, it will be remembered, thus revealing the importance of connecting content to life experience.

Robert Bjork, Department of Psychology at UCLA is a cognitive psychologist, discussed the capacity of the brain for storage strength and retrieval strength. He asserts that not only is the learning stored in memory but it includes how a student was feeling that day and the emotion is also associated with the memory. Retrieving the learning or the memory is dependent on the similarity between the learning context and the retrieval context. If a student learned it in school and now needs it in a real life experience, it may be difficult to retrieve. This has implications for experiential learning for all students but particularly for First Nations students for whom this is one preferred style of pedagogy.

In his book, “Enriching The Brain: How to Maximize Every Learners Potential”, Eric Jensen (2006) discussed the importance of applied neurological research into education. He offered 7 factors for enrichment in classroom and separate chapters for practices for parents and teachers on building enrichment activities in both the
formal and informal learning environments. He argued that we underestimate student achievement capacity and provided guidance on how to enrich the brain for greater memory, learning capacity, behavior, overall function based on an understanding of the brain as a dynamic organism. Jensen was adamant that enriched learning occurs through persistent and specific experiences that are a formula for maximizing student potential. He asserts that there are important skills that can be trained that make for a successful human being such as the ability to defer gratification, sequencing, emotional intelligence, improved working memory, vocabulary and processing skills. The reference offers a set of practices for home, school, classroom and suggestions for policy makers on further research.

Jensen has also produced a book titled, “Teaching with Poverty in Mind: What Being Poor Does To Kid’s Brains And What Schools Can Do About It” that discusses the impact of chronic stress on student performance. Jensen also offers workshops to teachers, parents, policy makers, and community members who are interested in studying enrichment and maximizing student potential. He suggests that four important elements often neglected by educators in favor of academic scores is nutrition, physical exercise, stress management and overall mental enrichment. Jensen offered a list of brain nurturing factors as a means of mitigating the chronic effects of poverty and maximizing student potential:

- Targeted goals and activities for building attention, long term effort, memory, processing skills, sequencing skills through stories, theatre arts, fine motor tasks
- Foster a mind-set of hope, determination and security through affirming dreams, engaging mentors, feedback on schoolwork, teaching students to set their own goals
- Meditation to lower stress
- Take control to offset learned helplessness by learning time management skills and setting goals, reward small accomplishments
- Exercise to energize the brain, yoga, dance, playing music
- Eat well with protein, calcium and vitamins while avoiding sugar and smoking
- Skill building

Studies show growing up in a home of low income can directly impact the organization and function of the brain as it struggles to form memories, has difficulty in focusing attention, shows a hypersensitivity to stress, has problems delaying gratification and is stifled in overall intelligence. The long-term effects of poverty impact IQ through disruptive sleep patterns, lack of mental stimulation, not enough food, continued exposure to stress, conflict, abuse or neglect, lack of access to medical resources and unsafe living conditions. (Roth, 2010)

Students who grow up in poverty face overcrowded schools, violent neighborhoods or communities, lack of enrichment activities that build social skills, and economic uncertainty. These emotions affect brain development and brain function and
impede learning. Over the long term, poverty related stress can lead to a daily state of fear. In response to fear, the brain releases adrenaline and cortisol that activates the flight/fight/freeze reaction in human beings. The brain gives fear a priority over learning. (LA Times, 2008) Students raised in low-income homes have stronger fear reactions with potential consequences for concentration. (LA Times, 2008) David Diamond, professor of neuroscience at the University of South Florida found that high levels of cortisol in rats affect the hippocampus, a key learning center in the brain. Cortisol suppressed the electrical activity, decreased the efficiency and reduced new cell growth. He proposed that this may also happen in humans and may show students have a hard time learning when there is violence or abuse in the child’s environment.

Stephen Matthews (Motluk, 2011, p. 27), Department of Physiology, University of Toronto studied the effects of stress hormones on the developing fetus, the burst of cortisol needed late pregnancy for the lung development of the fetus and how too much cortisol can do harm. Guinea pigs were used as model animals. They discovered that when a pregnant guinea pig experiences stress or gets a stress hormone injection, her pups’ brains can be permanently altered. The studies showed that the control center for hormone regulation is permanently changed and so are the brain neurotransmitter systems. Stress during fetal life can affect endocrine function and behavior throughout the animal’s life. Matthews research has found that “adversity during pregnancy is associated with offspring that tend to be more fearful, impulsive and inattentive.” (p.27)

“Pregnant women who experience intense stress even for short periods are more likely to give birth to children who go on to have disorders such as anxiety and learning troubles.” (p.27) The most shocking of the findings point to Matthew’s discovery that “sometimes these cortisol effects can last beyond the exposed generation and affect their children-and perhaps their grandchildren. There seems to be a trans-generational memory of adversity in early life.” (p.27)

Martha Farah, Director of the Centre for Neuroscience and Society at the University of Pennsylvania at Philadelphia said, “ I believe cognitive neuroscience can provide a framework for understanding, even problem solving such issues as the persistence of poverty across generations.” (Roth, 2006) In one research study, Farah found that children in Kindergarten from low income families showed poorer function than their middle class peers in the parts of their brains used for reading and language and for executive control (working memory, impulsive behavior, difficulty focusing attention) and said, “early life stress and limited cognitive stimulation have negative effects on neurological development.”

Another study by Farah reported in Brain Research (2006), showed the results of 60 elementary students matched for age, gender and ethnicity but of different socio-economic backgrounds, all took tests that challenged brain areas responsible for specific cognitive abilities. The findings showed that the children from low-income
homes had significantly lower scores in language, long and short-term memory and attention. (LA Times, 2008)

At the University of Pittsburgh, Peter Gianaros found that students from families lower incomes showed more activity in the amygdala, the part of the brain that processes negative emotions and stress. Those students also had less brain tissue in the anterior cingulated cortex, a frontal region controlling emotional impulses. (Roth, 2010)

Childhood poverty can have long lasting effects on the brain but can be mitigated by parental nurturing, warm and consistent loving from the parent to counteract too little safety, food or money. Resilient children typically have parents who talk to them a lot, have strong parenting skills, and are stimulating to their children.

In addition the findings for First Nations children simply assert that “culture trumps poverty” as a primary factor contributing to student academic performance, social and emotional well-being, character development, and optimal physical functioning.

**MBE SCIENCE**

“Mind, Brain and Education Science: A Comprehensive Guide To The New Brain Based Teaching” by W.W. Norton is an article from the book, “Why Mind, Brain and Education Science is the “New” Brain-Based Education” by Tracey Tokuhama-Espinosa, the Director of IDEA, Teaching and Learning Institute, University of San Francisco, Quito, Ecuador.

MBE science is part of a trans-disciplinary academic process among educational neuroscience, developmental psychology, and cognitive neuroscience as a new science to inform teaching and learning. MBE can offer evidence-based solutions using the multiple epistemological lenses of neuroscience, psychology and education. This science requires the synthesis of data, the assessment of information and the ability to think critically to propose innovative solutions. According to Samuels (2009) “Trans-disciplinarity is a perspective on knowledge creation that integrates disciplines at the level of a particular issue. It is an approach ideally suited for finding complex solutions to complex problems.” (p.46)

MBE science has the capability to provide multiple lenses for complex problems in classroom management, instructional styles evaluation methods and learning challenges.

The important caveat for this discipline is that for a concept to be accepted in the new science, educators as well as psychologists and neuroscientists must confirm the hypotheses both in their own discipline and within the other two companion sciences.
The findings that are applicable to education are:

1. Human brains are as unique as faces and humans as a species have clear developmental stages that set parameters for learning

2. All brains are not equal because content and ability influence learning

3. The brain is changed by experience, areas of the brain that are used can be stimulated, others not used will atrophy

4. The brain is highly plastic, develops through life but limits increase with age, people born with only one lobe of the brain manage to live life normally as the brain works as an entire system, challenges the belief that the brain has specialized and localized systems

5. The brain connects new information to old

CULTURALLY RESPONSIVE TEST PERFORMANCE

“Research and available clinical tools and guidelines for neuropsychological assessment of the country’s American Indian and Alaska Natives are grievously deficient, although several research teams have been recently making progress in recruiting and providing information about cognitive test performance in these populations. (Ferraro and McDonald, 2005; Verney et al., 2008; Whyte et al., 2005) Given that American Indians and Alaska Natives are currently the largest race or ethnic minority group in Alaska, Arizona, Idaho, Montana, New Mexico, North Dakota, Oklahoma, South Dakota and Wyoming, emphasis on empirical information in this cohort, with appreciation of its extraordinary heterogeneity, is critical.” (Manly, 2008, p.3)

In the article, “Critical Issues in Cultural Neuropsychology: Profit From Diversity" by Jennifer Manly (2008) clearly states the concern of, “Whether our field can become, on the whole, useful to improve health outcomes among culturally diverse people depends on our understanding of diagnostic validity, causation, and employing correct, statistical methods in analyzing data.” (p.3)

The field of neuropsychological research has embraced the challenge of addressing cultural diversity in cognitive test performance. “There is widespread agreement that many neuropsychological measures do not have acceptable diagnostic accuracy when used among people who are not Caucasian, well educated, native English speaking and middle to upper class.” (Ardila, Rodriguez-Menendez and Rosselli, 2002; Boone et al., 2007; Brickman et al., 2006; Manly, 2005)
The American Psychological Association Ethics Code, 2002 states that it is unethical to use inappropriate measures among culturally diverse individuals. However, the feeling among practitioners is conflicted when they approach the challenge. “Yet refusing to assess a large and growing segment of the population, many of whom may potentially benefit from neuropsychological services, would also violate the ethics of our field.” (Brickman et al., 2006; Harris et al., 2002) The Ethical Principles of Psychologists and Code of Conduct specify that, “It is our ethical obligation to safeguard the welfare of people who come under our care, to take cultural background into account and to do our best to eliminate bias.”

Manly has stated that the quality and accuracy of assessments of culturally diverse populations depends on the setting of the assessment, the evidence base for the methods used and the level of cultural competency of the neuropsychologist. (Manly, 2008, p.1)

In the article by Ferraro and McDonald (2005) “More Culturally Sensitive and Neuropsychological Tests and Normative Data Needed”, the authors present the challenges facing their field of clinical neuropsychology as a field of applied science concerned with the behavioral expression of brain dysfunction. They are behavior specialists who use tests designed to answer specific questions. As such the tests must be well-validated, reliable, standardized, normed measures that show and quantify behavior changes from brain injury or other central nervous system dysfunctions. Neuropsychologists also evaluate cognitive domains such as language, attention and concentration, visuo-spatial perception, constructional abilities, frontal systems executive functions (self-regulation), verbal and non-verbal learning, memory, sensory motor functions and intellectual functioning. They provide treatment for congenital or acquired brain dysfunction and help to highlight areas of strengths and weaknesses. Tests determine cognitive dysfunction, impairment, developmental disorders, and psychiatric disorders and assess functional status for treatment measures.

The tests involve qualitative data and numerical data to describe “normal” performance. The Gold Standard for a reference group is the NORM that shows the range of performance on a test established by a group of medically neurobiological healthy persons with homogeneous demographic characteristics and sound cognitive functioning. Patient history is also included along with background, present circumstances, motivation, attitudes, and expectations. The examination includes medical exam results, psychiatric results, education and vocational history to understand the test data.

Given this process, the limitations for First Nations are evident. Clinicians need access to normative data to enable them to clinically interpret test findings for Indigenous patients. Test norms are essential to analysis. The problem is that few large-scale normative reports can be found in the literature, signaling the need for more research in this area. In addition, the cultural competency of the clinicians is
also a critical factor in assessment if an authentic picture of the needs and treatment plan for the student or patient is to be formulated.

There are also logistical problems because researchers have not been adequately supported to work on normative research due to the expense of such research and also the assumption that descriptive research studies are not “scientific” giving this issue low priority in the field. The result is a scarcity of normative data for most tests for First Nations peoples in North America.

Whyte et al., 2005 support the need for large scale normative studies to confirm and explore factors such as education, acculturation, degree of Native American heritage all factors that may influence cognitive test performance.

The issue of language usage in testing is also a critical factor affecting the efficacy of testing in Indigenous children or other patients. Tests are needed in languages other than English and must account for culture and degree of bilingualism. Simply translating tests is problematic. Idioms exist within the same language and translation is costly and time consuming. Once a test is translated, the danger is that it may no longer measure the same cognitive functions as it did in English if the translator does not fully understand the culture or the language. (Puente and Ardila, 2000)

Several large-scale normative projects for African American “Black English” are underway based on the need for normative data. (Washington Heights Inwood Columbia Aging Project, Manly et al., 1998; San Diego African American Norms Project, Diehr et al., 1998 and Gladsjo et al., 1999) A normative manual for Black Americans of comprehensive norms to date is available in Heaton et al., 2004.

Ardila (2000) discusses the importance of understanding the cultural factors and the effects of bilingualism and biculturalism on test performance.

For Hispanic groups, in 1999, Artiola i Fortuny et al., developed Bateria Neuropsychologica en Espanol standardized and validated tests that were culturally adapted for Spanish speaking individuals.

The population of North America will shift dramatically by 2050. Immigration and the effects of a global economy on the movement and settlement of varied groups will change the face of the education, politics, social systems, health care and governance.

The United States Bureau of the Census 2001 has determined that the population will diversify in its composition.

The (non-Hispanic) White population will fall in the US to 50% by 2050.
After 2016, more non-Hispanic Blacks will be added to the population than non-Hispanic Whites. African Americans are the largest minority group in 22 states. Neuropsychological testing among African Americans has references that aid in a culturally responsive norms. (Campbell et al., 1996; Heaton, Miller, Taylor and Grant, 2004; Manly, 2005; Lucas et al., 2005)

The highest rates of population increase will be Latinos/Hispanics, Asians and Pacific Islanders in the next decades. The Latinos/Hispanics will become the second largest ethnic group by 2010 and will add more people to the US population every year than all other racial/ethnic groups combined. The majority of the persons in this group are Mexican. The neuropsychological resources for the Hispanic group are found in Fernandez and Marcopulos, 2008; Rosselli and Ardila, 2003; Artiola i Fortuny, Heaton, Hermosillo, 1998; Boone et al., 2007; Cherner et al., 2007, Llorente, 2007.

It is estimated that the Asian population will increase by 213% by 2050. Chinese is now the second most common non-English language spoken at home. Chinese Americans are the largest Asian group. Between 2005-2006, the percentage growth of Native Hawaiians and Pacific Islanders was the highest of any racial group except for Asians. Resources available to neuropsychologists for Asians and Pacific Islanders are also being developed in the US, China and elsewhere. (Teng, Yeo, Gallagher-Thompson, 1996; Teng et al., 1994; Fujii and Wong, 2006; Wong and Fujii, 2004)

Other factors affecting neuropsychological test performance are emotionally based for students and find their roots in the early years.

In 2006, the Government of Canada reported on the “Well Being of Canada’s Young Children.” The findings on emotional well-being were startling. In 2002-03, an enormous percentage of 16.7% of Canada’s children ages 2-5 years showed signs of associated with emotional problems. This figure rose from 13.8% in 1998-99.

In 2002-03, there were 12.7% of children ages 2-5 years living in rural areas and reported to have emotional problems compared to 17.2% of children in urban areas.

In 2002-03, there were 7.7% of male children living in urban centres reported to display signs of hyperactivity and inattention compared to 5.15% of rural males.

The article by Bowman, Donovan, and Burns (2000) titled, “Eager to Learn: Educating Our Pre-Schoolers” states that, “Studies on the effect of early environment and educational programs on the intellectual development of Indigenous children are few. However, the knowledge base from the number of studies on non-Indigenous children is expanding as current research focuses on the social and emotional intelligence quotient as being equally important as cognition.”
Studies are underway at the Milton and Ethel Harris Research Institute at York University to look at the processes that promote the development of the healthy mind in young children. The goal is to understand the interaction between psychological and neurobiological processes in order to identify and mitigate problems as early as possible and to enhance the development of healthy minds in children. The framework by Fogel (1993) called Dynamic Systems Theory is used to look at multiple factors affecting each other in simultaneous ways and their relationship changes over time (Fogel, King and Shankar, 2008). This study looks at the “effects of early intervention on a child’s psychological development while looking simultaneously at the development of the child’s brain-developmental pathways model whose principle is that initial neurobiological deficits (social/environmental/genetic) can strongly influence the kinds of interactive experiences that a child seeks out which in turn can have a dramatic impact on the development of increasingly specialized neural systems to better understand the pathways that lead to enhanced attention, concentration, self-regulation, social understanding, and empathy to tailor experiences to maximize the child’s development.” (Shankar, date??)

The work of MEHRI is vitally important to support some of the research now underway at the University of Toronto in the newly created Institute for Human Development. U of T researchers from medicine, education, psychology, and genetics are collaborating on the development of the Institute whose mission will be to find which experiences are most important and which genes in interaction with the early environment put a person at greatest risks and what interventions can make a difference. The findings will shape education and care for young children and infants.

“By the time a child sets foot in Kindergarten, much about her future life has already been set in motion-everything from her ability to concentrate and learn, to her lifetime chances of suffering from obesity or heart disease or depression. Evidence is mounting that what happens in the first four years of life can be critical to long-term well-being.” (Motluk, 2011, p. 25)

“What has become increasingly clear in recent years is that our genes are in constant conversation with our environment, and they are modified by the nutrients, the pathogens, and even experiences that we encounter throughout our lives.” (Motluk, 2011, p. 26)

This statement is supported by Stephen Lye, Professor of Obstetrics and Gynecology at the Samuel Lunenfield Research Institute who states that, “The period of development during pregnancy and early life is not just important for a healthy baby, but also for a person’s well-being later in life. In short, the kind of experience we enjoy in utero will to a significant degree influence our health and welfare for the rest of our days.” (p.26)

The discussion of child development within the lens of poverty and its long lasting effects on life trajectory is particularly disconcerting for children of the First Nations...
resident either in homelands or traditional territories or residing in urban centres. The legacy of the negative effects of trans-generational trauma on brain development, emotional self-regulation, parenting, early sexualized behaviour, engaging in high risk substance abuse, bouts of mental illness or homelessness can be now traced to early maternal health and family dynamics within an environment of poverty. This framework provides for a new fresh look at the roots of pain and dysfunction within our communities and offers the opportunity for new partnerships to bring innovative solutions to First Nations through collaboration among many experts in diverse fields. The old arguments of universality of programming can no longer be sustained in the face of new research that supports the development of the individual as a cultural being interacting with his/her environment.

“Critical Neurophilosophy and Indigenous Wisdom” written by Four Arrows, Cajete and Jongmin in 2009 discusses the lens of Indigenous wisdom as a way of understanding the nature of being human, experimentation, and the framework of using traditional Indigenous values to draw conclusions. They contend that Indigenous wisdom is a corollary for current philosophical thought that human nature is constructed on selfishness as the primary motivation for behavior, that humans are superior to all other life forms, that deception is a natural evolutionary survival mechanism or that war is natural to our species. Healthy reciprocity and cooperative behaviors are foundational pieces necessary for survival in Indigenous traditions. “Indigenous wisdom is intuition, self-reflection, metacognition, observation of the natural world and humans for thousands of years, tested and retested in the rigorous laboratories of survival.”

This knowledge is used collectively to sustain life and to contribute to transportation, food, storage, preparation, herbal medicines and other rich sources of medicines, clothing, governance, child rearing, conflict resolution, equitable distribution of wealth and create positive relationships. The authors state that such wisdom has largely been ignored, suppressed or marginalized. They apply these understandings to neuroscience in this discussion to offer a cultural lens for researchers and clinicians on how to engage Indigenous peoples with authentic service, test, study or teaching.

**RECOMMENDATIONS FOR STRATEGIC PLANNING**

1. **Teacher Training and Professional Development Courses**

Much of the research comes from the United States, Australia and New Zealand and is found within longitudinal studies that are evidence based and a synthesis of reliable research linking pedagogy to improved student outcomes. Some of the findings of these studies include the importance of teaching as a prime factor leading to greater student academic success and this statement is valid even in those
instances of gender differences in achievement of boys and girls and across cultures, race, and socio-economic differences, rates of learning and student learning preferences. There is also a great effect on student achievement by the curriculum, classroom organization and school policies and culture. Pedagogy is the teaching and assessment of children. Delivering high quality teaching is the challenge. What kind of pedagogy works best with Indigenous students?

“Rather than a scatter gun approach, we advocate that we need to take the very best available theory, research and practice and develop theoretical models that we test and revise or refute based on empirical evidence. In such models we need to focus our attention on what factors are likely to have the biggest impact on desirable educational outcomes. Hattie and Rowe’s work shows us the way—we need to focus on the factors that have the most impact, and clearly teachers make the difference.” (Crave, Bodkin-Andrews, Yeung, 2007, p. 13)

Examine in more detail the findings of the Australia- New South Wales Model of Pedagogy that promotes high levels of intellectual quality, a high quality learning environment and a pedagogy that generates significance by connecting students with the intellectual demands of their work. Each of the three dimensions is comprised of elements including inclusion and transmission of cultural knowledge, inclusiveness, connectedness, social support, student direction, high expectations, learner’s background knowledge, knowledge integration and engagement among others.

In New Zealand, Te Kotahitanga is a longitudinal study of teacher professional development whose purpose is to raise Maori student achievement levels in secondary education. Some stunning results have now been seen in retention, attendance, school and community relationships, support for the cultural identity of Maori students, and teacher/student relationships comprised of respect and increased academic performance.

In Canada, an excellent reference for teacher education and certification is the literature review by Barb Kavanaugh (2010), on behalf of FNESC, called, “Making a First Nations Studies Course a Requirement for Certification in British Columbia.” Today, all teachers undergoing professional training and certification must take a course in Indigenous knowledge for their curricular planning in BC. The paper includes goals for First Nations education, closing the achievement gap and enhancing teacher awareness.

Professional development courses and teacher training should also include training for cultural safety that examines the power relationships in the classroom and school. (Dr. Jessica Ball) Cultural competency training is an ongoing issue for teacher capacity. As teachers move more extensively to include Indigenous knowledge in the curriculum they will move from “surface culture” to a need to understand “deep culture.”
The training of more Indigenous teachers is also a prime recommendation to build an academy as well as ensuring that the classroom of Indigenous learners whether in the city or in a First Nations community will reflect the learners who are seated there. Teachers must reflect the student composition in the classroom and school. The recommendation also addresses the critical need for more First Nations resource teachers given the prevalence of students with special needs.

In Finland, teachers have the same professional status as physicians and lawyers and are paid in a similar fashion. Once the teachers enter the system with their first degree and certification, they are supported financially by the State to acquire further degrees at the Masters and Doctoral levels. The State secures its academy and makes sure that there is continuous lifelong learning and professional development to continue to enrich the educational experience for all citizens.

As one of the primary recommendations of this report, specialist certification programs in the field of cultural competency should be mounted by Faculties of Education for teachers of Indigenous children or Indigenous teachers. Accordingly, those Culturally Competent Teachers should be valued by the addition of salary benefits commensurate with a specialization in culture and heritage languages. Principles of inclusive education and universal design for learning incorporate aspects of cultural competency.

First Nations along with their partners in Colleges or Faculties of Education should consider organizing teacher in-service training and pre-service training to reflect cultural competency as a specialty area of concentration with a view to creating a professional pathway to further graduate studies for those teachers interested in pursuing advanced degrees.

Federal, provincial and territorial governments are responsible for funding such a program of specialization.

While there is much to look forward to in pursuing innovation across many areas of study, there is a cautionary note from Demmert (1994). “Despite the possible benefits of language and culture in school reform, it is unlikely any measurable impact will be made over time unless teachers are adequately trained, quality curricula are developed, and sufficient funding is secured to develop sustainable programming.”

2. Research Highlighting Promising Practices

a) Implementation in a First Nations School or School System To Highlight Cultural Competency

A focused longitudinal study is needed in a First Nations context for implementing promising practices in a school system from early learning to Grade 12. The research outcomes from models on pedagogy to culturally responsive curriculum to
culturally relational community-school relationships needs to be implemented to generate the data for showing the key factors that contribute to the cognitive, emotional, spiritual and mental well-being of Indigenous students and the resulting academic success as noted in First Nations Control of First Nations Education 2010, the Senate Report on First Nations Education, and the Report of the National Panel. Studies might focus on socio-emotional factors impacting academic success and also academic issues of reading, language acquisition, mathematical skills, second language learning, and so on.

**Tracking of graduates** to the work environment or on to skills training or post-secondary education needs to be part of the study. Their economic contribution to society needs to be monitored as well as savings calculated in the social safety net and the resulting economic benefits of First Nations contributions that strengthen Canada.

Data collection, owned and monitored for confidentiality by First Nations is a key product of the research that will prove invaluable to future planning.

Maintaining and acting on traditional values such as living in an Indigenous territory as a permanent residence, using a traditional language, participating in traditional ceremonies, retention of cultural traditions, attending school in the home territory and being a member of a strong family are all associated with higher grades in school and lower drop-out rates. (Ward, 1994; Crawford, 1987; Deyhle, 1986, Huffman, Sill and Brokenleg, 1986)

What are the primary factors that are barriers to educational success for Indigenous learners? What are those factors that are evidence-based results of rigorous studies that show key factors contributing to academic performance of Indigenous students in the classroom, the school environment, the community and the family?

**b) Research: Inquiry into Practice**

There is now a wealth of research that bears replication such as social and emotional literacy, early learning methodologies, emotionally intelligent classroom, strategies that support effective teaching and assessment, spiritually aligned classroom, school and community, parenting techniques for childhood joy leading to adult resilience, engagement of parents, networks to share innovations to promote cross pollination of best practices, harnessing resources for change and examining gaps or systemic barriers.

Pilot studies or demonstration sites need to be established immediately with University partnerships to offer longitudinal studies assessing the culturally and linguistically rich learning environment and pedagogy, including culturally based assessment techniques, culturally grounded school, Division (Manitoba) and Board policies and strong community engagement.
In the long term, a First Nations Centre for Educational Research for Excellence in Education is much needed.

Those best practices have now been identified from numerous case studies of First Nations schools and can be replicated throughout Canada (Bell et al., SAEE, 2004; Fulford, SAEE, 2007). The outstanding recommendations are listed below as markers for creating an educational system that is culturally responsive to the Indigenous learner in an optimal learning environment leading to greater academic achievement:

- High expectations for student achievement (Te Kotahitanga, New Zealand; Window Rock Unified School District, Arizona)

- Effective leadership, good governance (National Integrated Strategy for Closing the Gap in Indigenous Disadvantage, Schedule A, Government of Australia, 2008; Culturally Responsive School Boards, Alaska Native Knowledge Network, 2002; Akwesasne Mohawk Board of Education; Te Kotahitanga, New Zealand)

- Multiple supports for learners (MACS Early Learning Centre, Australia)

- Secure and welcoming environments for learners (Cultural Standards, Alaska Native Knowledge Network, 1998)

- High percentage of Aboriginal staff (KEEP, Tsehootsooi Dine Bi olta School, Navajo Nation)

- Quality staff development (Te Kotahitanga, New Zealand)

- Grounded in culture, language, community traditions (Kamehameha Early Education Program, Hawaii; Tsehootsooi Dine Bi olta School, Navajo Nation; Nawahiokalani opu u Laboratory School, Hawaii; Puente de Hozho School, Arizona; Window Rock Unified School District, Arizona)

- Assessment linked to planning decisions (KEEP, Hawaii; Te Kotahitanga in secondary schools in New Zealand, Kamehameha Schools, Hawaii)

- Vigorous community partnerships, external alliances, parent involvement (Kohanga reo, New Zealand; Puente de Hozho School, Arizona; Kamehameha Schools, Hawaii)

- Focus on early learning opportunities for young children, place Head Start as part of the education program, early literacy, family literacy (KEEP, Hawaii; Kohanga reo, New Zealand, MACS Early Learning Centre in Australia)
• Special needs children receive early assessment, treatment and appropriate placement (Awhina High School in New Zealand)

• Culturally relevant program resources and curriculum (Kohanga reo early learning centres in New Zealand; Nawahiokalani opu u Laboratory School, Hawaii; Tsehootsooi Dine Bi olt School, Navajo Nation; Puente d Hozho School, Arizona; Kamehameha Schools, Hawaii)

• Indigenous language learning funded as in French language funding formulas

• Teacher education with a special focus on Indigenous curriculum, pedagogy, assessment, policy development, salary incentives commensurate with a specialist level degree (Making a First Nations Study Course a Requirement for Certification in BC, First Nations Education Steering Committee, BC, 2010; Preparing Culturally Responsive Teachers, Alaska Native Knowledge Network, 1999; Te Kotahitanga, New Zealand)

• Teacher evaluations (Te Kotahitanga, New Zealand; Kamehameha Schools, Hawaii)

• Culturally Responsive Teaching References (Culturally Responsive Teaching, Geneva Gay, 2000; Theoretical Perspectives on American Indian Education, Terry Huffman 2010; Self-Determination Through Self Education: Culturally Responsive Schooling for Indigenous Students, 2009)

• Data collection, tracking students after graduation (Te Kotahitanga, New Zealand; Kamehameha Schools, Hawaii)

• Funding criteria acknowledge the need for language and literacy, libraries, curriculum resources, specialist teachers, counseling, family supports, tracking and data collection (Awhina High School, New Zealand)

• Funding Mechanisms (Cost of Quality First Nations Education, M. Matthew, 2000)

• Culturally Appropriate Measures of Success (Holistic Approach to Measuring Success, The State of Aboriginal Learning in Canada, CCL, 2009; Demmert, 2009)

• Community Support for Education (Lipka, McCarty, 1994)

3. Educational Leadership

The need for a systems approach to Indigenous knowledge and pedagogy in classrooms, schools, school divisions and Boards of Education is a critical piece of
educational reform from the First Nations perspective. It is no longer sufficient for simply the teacher in a classroom to be culturally competent. The Principal as educational leader of the school, the Special Education teacher, the Counselor, the Superintendent and the Board of Education members are equally responsible for the learning environment and cultural safety of the Indigenous children.

Alaska has models for the culturally rich classroom, school and School Board that we might draw upon for a framework to engage all educational leaders in training and development for their particular First Nation or school division.

Frameworks that are broad enough in their goals must be designed to benefit the development work of the First Nations in strengthening their systems so that all staff have culturally competency specialist training including training in cultural safety.

4. Indigenous Language Learning

Heritage languages from Indigenous Nations are part of the cultural fabric of Canada and enrich its history, nationhood and distinctiveness in the global family. Yet those opportunities for language acquisition are few, underfunded, lacking in age/grade appropriate learning materials and sufficient Indigenous Language Teacher certification programs to meet the needs of Indigenous learners across the country.

Immersion programs for language fluency are especially needed with reading and writing introduced in the later grades with English as a bilingual part of the program in mid-elementary grades.

Promising practices include the immersion program at Chief Atahm School in Adams Lake First Nation near Kamloops, British Columbia, Tsehootsooi Dine Bi olt School in Navajo Nation, Nawahiokalani opu u Laboratory School in Hawaii, Puente de Hozho School in Arizona and the immersion school at Kahnawake, Quebec.

The models for French immersion and their funding formulas must be examined with a view to the reform of First Nations language policy and funding levels in Canada. International sources of funding are available and should also be sought if Canadian government standards are inadequate. Partnerships with NGOs whose mission is to support Indigenous peoples cultural and linguistic revitalization would be in alignment with First Nations purposes.

Language acquisition is key to supporting a strong and vibrant cultural tradition in the First Nations. Funding, programming, teacher training and the development of age/grade appropriate resources must become a priority for the next decade before fluent speakers become fewer in number.

The time to act is now.
5. Theoretical Framework

Indigenous knowledge, cultural practices, ceremonies, language fluency and traditional land based lifestyles have long been identified in research as important factors in supporting resilience and well-being for Indigenous children, youth and families. Little attention has been paid to designing a theoretical framework.

Healthy psychological outcomes for well-being contribute to our collective future. These outcomes are founded on historical knowledge of our cultures and territories and our genealogy. The sense of belonging to one’s own cultural group provides children and youth with a sense of self and one’s own gifts, and a sense of the collective of the community. Cultures offer systems of meaning that define a person.

McIvor and Ball (2005) in Learning About Teaching As If Communities Mattered: Strengthening Capacity Through Partnerships, say “......students, families and children need support in relying upon and strengthening their own internal navigation system for reaching their own optimal development. The roots of this internal guide lay in part, in each individual’s culture of origin. Thus, celebrating culture in education, training and practice is much more than just acknowledging diversity. Rather it reaches to the core values and goals that guide curriculum decision-making and interactional styles in everyday practice. It focuses on the community, family and child strengths rather than the deficits or problems. The more we can support students, children and parents in expressing and consolidating their cultural identity, the more our educational and community development practices will embody and mirror the cultures of the children and families we serve....”

The socio-historical theory is based on the understanding that a child’s social and cognitive development is formed by the local culture of birth. (Vygotsky, 1978; Rogoff, 1990) The theory holds that an individual’s social, emotional and cognitive growth is embedded in a social context that is anchored in past relationships and social and cultural activities. The theory is relationship based noting a web of interaction that forms meaning. (Rogoff, 1982)

“There is formal evidence that culturally based education (CBE) programs with strong Native language programs influence a youngster’s academic, social and cultural development as well as one’s identity in a positive way.” (Demmert, 2001; Demmert and Towner, 2003)

Some First Nations scholars such as Marie Battiste, College of Education at the University of Saskatchewan assert that the acquisition of language is the key to decolonization. In fact, much of the work to revitalize Maori has been initiated and accomplished through the recovery of the language in the early 1970’s through the language nests.
Demmert offer three educational theories and six critical factors related to culturally based education in the article, ‘Improving Academic Performance of Native American Children.’ The theories are cultural compatibility theory, cognitive theory, and cultural historical activity theory. Each of the theories has its strengths and bears further trials and investigation.

The six critical elements of culturally based education:

- Recognition and use of Indigenous languages
- Pedagogy that stresses traditional knowledge, values, relationships
- Pedagogy in which teaching strategies are congruent with traditional culture of the community and contemporary ways of knowing
- Curriculum that is based on traditional Indigenous knowledge and spirituality
- Strong participation from the community
- Knowledge and use of the traditional values and behaviours/protocols of the community

At the tertiary level, culturally based, linguistically authentic curriculum and school policy framework needs to be developed as a guide for First Nations schools and First Nations Education Authorities to use as a development resource for their community/schools.

6. Neuroscience

(a) Learning Indigenous Languages and Cultural Practices

Studies of the effects on the brain, its growth and neurological function when a culturally based curriculum and language learning is present have not been undertaken to date and need to be considered as part of rigorous evidence based research practice. This is an area for prime research that could change the face of Indigenous education if the results show marked academic progress across disciplines and achievement milestones over the grade levels. This type of study would offer some evidence-based results that would inform policy, pedagogy, teacher training, classroom learning environments, school organization and systems wide change.

Research studies of a large scale should also be undertaken to determine norms for First Nations neurological testing for cognition given acculturation and language usage across a continuum. To date, little has been done in this field and our
students and families are subjected to norms applicable to English speaking, urban, middle to upper class, Caucasians.

A partnership with a University utilizing neuroscience based studies in education such as York University, Toronto, Ontario or the newly formed multi-disciplinary programs of the Institute of Human Development at the University of Toronto may prove invaluable to First Nations research and innovation.

(b) Teaching Children from Poverty and Trauma

Children who grow up in economic uncertainty face a roster of risk factors. The latest neuroscience shows how emotions have effects on the brain and can directly impede learning. Chronic stress derails the brain with cortisol, a molecule of energy activating the heart and brain for saving life, the flight, freeze or fight reaction.

At school most children in fear, anxiety or trauma will freeze up and do nothing. Fear interferes with learning and when a child feels threatened at home or at school, this is the most severe stressor. Chronic stress cause high cortisol levels affecting the learning center in the brain by suppressing electrical activity, decreasing efficiency and reducing new cell growth. Chronic stress also impairs mood and memory. I

In homes where there is stress, violence or abuse, the results will show in the student’s ability to concentrate, learn, long term and short term memory capacity, attention span and language learning. Students raised in low-income homes also have stronger fear reactions.

Mandatory teacher training in inclusive special education can be supplemented with:

- Targeted preparation in memory, sequencing skills, attention, long term effort, processing skills
- Use theatre arts, storytelling, fine motor tasks, painting, clay sculpting, drawing
- Foster a mind-set of hope and optimism through mentoring, affirming the students, giving useful feedback to students on their work, teaching students to set their goals
- Meditation and yoga connects the mind to the body and lowers stress
- Social supports, mentoring programs, empathy, caring, sharing time with a big sister/brother
• Exercise stimulates the brain and makes more cells

• Eat well, proper and balanced nutrition, traditional foods, using dietary changes to improve learning capabilities, eliminate sugar and smoking, take calcium, increase sources of protein, and take a multivitamin each day

These findings have implications for pedagogy in First Nations classrooms. Further study is required to begin to implement some of the recommendations to assess how they might impact student achievement.

7. A Network of Research Alliances and Information Sharing

The outstanding issue is not only the lack of quantitative longitudinal research but also the lack of communication among researchers from various disciplines with Indigenous stakeholders.

Productive research partnerships with First Nations among Universities or Technical Institutes or Aboriginal Controlled Post-Secondary Institutes will attest to the value of creative growth and vitality of educational programming.

In addition, some of the chronic issues facing Indigenous education systems can be cooperatively tackled such as:

• Governance and jurisdiction over First Nations education

• Multiplicity of funding mechanisms for First Nations education across jurisdictions and funding sources that are not targeted nor evaluated, multiple funding formulas and agreements, studies needed for the social and economic return to society of a well-educated Indigenous population, child social exclusion index, current cost of the assimilation model of education

• Multiple jurisdictions with mixed authority operating on different tracks (federal, provincial, territorial, First Nations School Authority, School Boards, First Nations administrations)

• Communication mechanism across jurisdictions, systems, for policy development collaboration and data collection, tracking, sharing data, confidentiality

• Absence of a body of research to provide policy makers with a shared base of evidence based studies, best practices, features of effective programming, policies for large scale gains and impact studies

• Barriers to First Nations students reaching their educational goals (subtle forms of racism in the classroom, Indigenous students over-represented in
expulsions/detentions, power relationships in the classroom, unequal distribution of emotional support and quality of instruction by the teachers, social exclusion, marginalizing Indigenous knowledge, stress, conflict of home/school cultures, parental absence of support for the school)

- Other systemic barriers include historical conduit of underfunding, limited supply of accredited teachers and teachers of Indigenous languages, infrastructure issues, governance, absence of data for planning, capital funding and planning systems, lack of second and third level services, education legislation for First Nations education, specialist teachers, libraries, internet, culturally respectful assessment techniques

Work needs to begin to establish a national and international network of partnerships to share research findings and bring the best of the findings to bear for innovations in First Nations education.

Ethical, culturally respectful research standards should be part of the statement of commitment before the partners begin their work.

8. Strength Based Paradigm: Framework for Informing Policy

The multiple strengths of First Nations can be used as building blocks for ensuring student success is achieved in a strategic planning methodology. Longitudinal studies and data collection are needed to study innovative solutions and add to a comprehensive assessment of Indigenous learning in Canada.

Protective factors form a strength based paradigm such as the value of a strong nuclear family, extended family and clan, community consciousness, value of Nationhood, historical strengths, Spiritual Law, Natural Law, land based learning, heritage languages, vibrant cultures, arts, theatre, music, science, mathematics, environmental methodologies, restoration of the land, holistic worldview, rites of passage and understanding of prophecy for the way forward.

The strength-based perspective is essential to showing the balanced healthy Indigenous person, family, clan and community.

The perceptions of Indigenous students must also form part of the study. They are insightful in providing their ideas of quality teaching, culturally relevant curriculum, school climates that are welcoming and affirming, healthy parent/family relationships with the school, policies in the school that protect student rights and schools that offer deep culture throughout the system.

Data collection is particularly crucial for gathering the information needed on the learning experiences of Indigenous students in both First Nations territories and in urban areas. This information can be tagged to the progress of Indigenous adults in the workplace and in the pathway to lifelong learning.
Culturally appropriate properties of all psychometric instruments should be carefully examined so that teachers can reflect on their assessment practices and instructional methods. Teachers need to be able to assess multiple domains of First Nations students psycho-social profiles and curriculum areas and use recent advances in educational psychology to inform early intervention for their students. Some of those advances in psychology include the work of Robert Vallerand on positive psychology. (Vallerand, 2007)

The new culture based, strength focused paradigm must be constructed in light of the failure of old assimilative models to meet the needs of Indigenous learners. A collective panel of experts drawn from First Nations schools and First Nations education organizations would be the recommended body to lead the development of a framework of culturally responsive standards, culturally responsive and relational curriculum and pedagogy, culturally responsive community, family and student engagement and policy development for First Nations schools that would establish CRE in the administration of the First Nations education system.

The Chiefs Committee on Education would stand as national advisors for approval of the final version as an Action Plan for a view of the very best educational goals for First Nations leading to healthy children, families, communities and Nations.


The work that will lead us in this direction for understanding the real costs of First Nations education in Canada comes out of Australia. An important article by P.N. Junankar called, "Estimating the Social Rate of Return to Education for Indigenous Australians" and the Child Social Exclusion Index also from Australia will provide some templates for action in Canada. The social rate of return measures the net benefits to society of educating its citizens. If education is truly an investment in human capital then society is farther ahead by increasing investments in education as long as the social rate of return is higher than that of other public investments.

Higher levels of education generally lead to improved economic standing through attaining better paying jobs and increasing the earning span. The rate of return is high to the individual personally and to society as higher taxes are paid and the consumer has a higher rate of purchasing power. Improved education levels lead to better nutrition, housing and to a better quality of life. Lower rates of usage of social services occur when the Indigenous family is better educated with less likelihood of going to prison, being on welfare, entering a shelter, utilizing food banks, and so on. The social rate of return is higher for Indigenous peoples than for non-Indigenous peoples because the population as a whole has been in such a vulnerable state for so long. From an investment perspective and public policy perspective, it would seem
that increased government investment in First Nations education would yield a social rate of return well worth the investment.


Program funding on an annual basis with a 2% cap is no longer acceptable. Full transfer payment for education supported by a legislative foundation over the long term is the only way to fully operate and plan in a modern education system.

A series of economic studies should be brought forward immediately to focus on the economic return to society and the social return to society of a well-educated Indigenous population over a 25 yr. period. Actuaries may need to be part of the study for global views of financial trends.

Trends analysis of Indigenous populations in isolated or semi-isolated geographic regions should also be part of the study. Studies in the past have been provincially or nationally focused and do not bring a lens to the local needs of First Nations in a particular region such as the northern areas of the provinces and territories in Canada.

10. A Large Scale Study of Educational Outcomes

A study of how culture and language have been prioritized and placed in First Nations schools calls for a large scale study to describe the field. This type of study would generate research topics for further study. It would also lead to a correlational analysis of how deeply embedded culture and language are in the curriculum and with such variables as identity or self-concept, teacher cultural competency, attendance, retention, graduation, parental involvement, community control of education, school governance, teacher credentials, the ethnic background of the teachers, parental attitudes to education, high levels of special education placements, substance abuse, delinquency, health and fitness levels, role of parents in decision making at the school, community characteristics, community economy and so on.

There are few areas where First Nations language and culture have been embedded in the school program for a long time. Researchers have typically not focused on long term outcomes for First Nations students because longitudinal studies are difficult to manage and expensive. Research is negligible on the process to follow to build an educational system on culture and language as a foundational context. Many of the advances in Canada have been situated in the Northwest Territories and Nunavut where populations of Indigenous peoples are much higher.
No study has yet documented the effect of culture and language in the curriculum on non-academic benefits that have a positive influence on First Nations. However, most Indigenous educational leaders agree that culture and language are the core of building First Nations citizens with a love for their people and land who also contribute to the Nation building process and to the community’s economy. (Kana’iaupuni and Kawai’ae’a, 2008)

Much of the research describes small studies and too little has been done in the field at this point. Many studies focus on culturally responsive education without looking at other factors both internal to the school and external within the community that may also impact student achievement.

Substantial resources have been invested over time to improve the educational outcomes of First Nations students utilizing many innovations but these have largely gone unevaluated or assessed over the long term.

If evaluations have been made, the methodology for sharing best practices across First Nations territories has not been fully developed.

A large scale study conducted over two decades would yield measures of educational outcomes and establish trends that would permit school reform with evidence based data on school programming in language and culture, school reforms as well as societal, demographic and economic trends.

11. Comparative Case Studies of First Nations Schools

A detailed look at a number of schools with large Indigenous student enrolments in three sites of a First Nations territory, a federally controlled school and a provincial school with at least 30% Indigenous student enrolment would offer some current data on student outcomes. The school sample could be divided into the appropriate divisions of K-3, 4-8 and 9-12 with a common research design for cross analysis.

The causal influences of culturally responsive teaching and curriculum, characteristics of successful schools, the effect of self-esteem and identity on achievement may work to provide new models and innovative interventions that directly enhance educational outcomes for Indigenous learners. A model of research is required that is a rich longitudinal study enhanced by empirical investigation on the causal influence of specific variables in a methodologically sound large scale causal modeling research design.

Out of a study of this nature would emerge models for replication and interventions for further study.

In addition, comparisons could be drawn on specific variables with non-Indigenous schools and school systems in similar geographical regions.
12. A National Institute for Research in First Nations Education

“Driving Reforms in First Nations Education”

The research found in Canada on Indigenous education has been principally qualitative in design, reports that are primarily descriptive of single solution results that can be assumed or inferred, small case studies and locally focused in design for one or a few First Nations. The research to date has largely been isolated from broader discourse in innovations in child educational psychology, teacher professional development, social and emotional literacy, neuroscience on brain development and cognition, language learning, maternal infant health, nutrition, community safety, poverty, developmental child psychology, or pediatrics.

Current research findings also focus essentially on “problems” rather than innovations in pedagogy, professional development, school/district/Board of Education wide systemic policy changes, a spiral curriculum for mastery, parent/school relationships, locally controlled education, language immersion techniques for bilingual programming, higher order comprehension not memorizing content or evaluations of student competence that are culturally appropriate.

A strong theoretical model of longitudinal research is required that is both bold and rigorous, with culturally appropriate assessment tools that can determine causal outcomes rather than inferences, incorporating a multifaceted design that can evaluate compound variables, with empirical results also utilizing quantitative instruments, evaluating the interaction of poverty, poor health, social exclusion and racism that impact student achievement. Good research design will use ethnographical data along with qualitative and quantitative measures to get the fullest picture of the data. A National Institute would be responsible for enacting such research and for identifying the drivers for reform of First Nations education.

There is a lack of evidence-based research on a large scale and with such levels of sophistication in Canada. This points to a major deficiency in the quality of research available on First Nations education and only serves to maintain the status quo of assimilative models of education that are fundamentally outdated and destructive to the present and future generations of Indigenous learners and First Nations communities. New research is required to identify new solutions to underpin innovative and effective educational intervention to strengthen Indigenous education outcomes.

The nature of regional differences leading to cultural and linguistic diversity, as a key factor for the resiliency of First Nations, has not yet been fully explored. Not only is speaking your language fluently, being immersed in deep culture of spiritual ceremonies and traditions and living in a First Nations community strong protective factors leading to student achievement, but the nature of how those factors interact to promote a positive school experience has not yet been fully documented. Specific
educational interventions or methodologies should be researched to generate new solutions for driving reforms in Indigenous education.

All levels of federal, provincial and territorial governments concur that Indigenous learners are disadvantaged and participate less in education compared to their Canadian counterparts. This is now a dire situation both socially and economically with potential negative impacts on lifelong learning given the fact that half of the First Nations population is under the age of 30 years and approximately 70% are living in urban centers.

In Canada, the Indigenous population is part of national data collection although it is unreliable in the census since many First Nations do not participate in the collection process. National data collection is a key factor for the proposed National Institute for Research in Indigenous Education. In Britain, the ongoing National Survey of Health and Development is one of the world’s largest and most comprehensive longitudinal studies. The study maps the biological and social pathways to health and disease form early life to later ages. The analysis of social, health and developmental variables since the 1940’s has made significant contributions to social policy and health policy in that country. The Regional Longitudinal Health Survey here in Canada has some significant data for planning purposes in education, but most of it is not targeted specifically to education. It does have some data for cross referencing purposes in health and well-being and socio-economic factors that can feed research questions for culturally responsive education.

A national system for data collection in education should be established as part of the National Institute. The data, ownership and control and usage should be under First Nations control and management.

The power of data, who gathers it, analyzes, and reports on it determines who tells the story. Instead of being evaluated, First Nations should become the evaluation experts. Documentation and assessment helps to adjust strategies and move programs in the direction of legitimizing language usage, utilizing Indigenous knowledge and culture to create meaning in education and strengthen the culture.

If First Nations do not control our data to tell our story, then First Nations risk continuing the status quo by allowing the interpretation of our needs by others, knowing the story may be distorted or marginalizing. Culturally responsible collection of data will enhance the validity of the research because First Nations will collect data in ways that are respectful of Indigenous ways of knowing while honouring Indigenous perspectives and values. By using data collected by First Nations, culture is strengthened and policy making is authentically based on the goals of First Nations to create an educational agenda that is vital, fresh, innovative and rich in nature.

13. An International Dialogue on Indigenous Education
The similarities of history from colonization and oppression leading to racism in daily life and continued systemic barriers to success for First Nations in education need to be examined in deep dialogue by those Indigenous Nations from the US, Canada, New Zealand and Australia.

An international roundtable every four years is recommended for sharing outstanding empirical research findings and moving them into practice in many different settings. Best practices can be shared so that duplication will be avoided to a degree or comparisons can be made that will seed further studies. We know what works, have ideas for further study and can mutually aid each other in devising an international plan for research that will not only save time and money but move our shared agenda forward in a shorter period.

Each of the participating Indigenous Nations from countries will take responsibility for hosting the meeting on a designated schedule starting with those countries where interest is greatest and where funds can be identified.

14. A Research Model for Culturally Responsive Education

The work of Kamehameha Schools in Hawaii provides us with incentive for longitudinal study, as well as impact studies on how CRE is working in Canada. A research model offered by Yap (2004) in, “Experimental Research in Culturally Based Education: An Assessment of Feasibility” can provide a variety of models for First Nations to consider in evaluating culturally responsive education in Canada.