Knowledges Working Together:
“Integrative Science”

“Two-Eyed Seeing”

National Aboriginal Policy Research Conference
Ottawa, 21-26 March 2006
“Integrative Science”, or “Two-Eyed Seeing”: Aboriginal and Western knowledges working together for communities in the 21st Century

ABSTRACT

Science and technology are dominant economic drivers within our modern multi-cultural societies, yet the teaching of science generally proceeds from a base in only one culture, namely the “Western or Eurocentric”. Indeed, Dr. Gregory Cajete (native educator and scientist at the University of New Mexico) has identified the teaching of science from one cultural perspective as the central dilemma in science education today, especially within the context of Aboriginal communities.

Acknowledging this, “Integrative Science” emerged at Cape Breton University (CBU) in Sydney, Nova Scotia in the late 1990's as a joint university-Mi’kmaq community initiative to “bring together Indigenous/Aboriginal and Western scientific knowledges” for the purpose of university level science education, and as part of an effort to attract more Mi’kmaq students into the post-secondary sciences and science-related areas. Since its beginnings in the science education arena, Integrative Science at CBU has broadened to include a Tier 1 Canada Research Chair with projects in the arenas of science research (e.g. Aboriginal health) and science applications (e.g. ecosystem management). Furthermore, the Integrative Science initiative has been given the descriptive label of “Two-Eyed Seeing” by Mi’kmaq Elder Albert Marshall of Eskasoni First Nation. His label points to the urgent need for modern Canadian society to learn to see from our one eye with the strengths of traditional Indigenous/Aboriginal knowledge and from our other eye with the strengths of modern scientific knowledge ... and, moreover, the deep need to have both eyes work together for the benefit of all.
Dr. Cheryl Bartlett (CBU) and Dr. Marilyn Iwama (Acadia University) are both heavily involved in aspects of Integrative Science research and will use the opportunity of the ACOA-sponsored workshop to share the insights of their co-learning journey with Mi’kmaq Elders and community organizations towards the “bringing together of Indigenous and Western scientific knowledges”.

Dr. Bartlett will speak within the context of Integrative Science partnerships with community towards new opportunities. Such partnerships include that with the Unama’ki Institute of Natural Resources, the Mi’kmaq organization in Cape Breton that works on behalf of all five Mi’kmaq bands towards natural resource management efforts in Cape Breton ecosystems, as for example the Bras d’Or Lakes and Cape Breton Highlands. A second partnership exists with the Mi’kmawey Debert Cultural Project, an initiative of the Confederacy of Mainland Mi’kmaq towards development of a cultural interpretation centre for the Paleo-Indian archaeological site at Debert, NS. The significance of the Debert site is thought to rival that of the L’Anse aux Meadows world heritage site in Newfoundland.

Dr. Iwama will speak within the context of Integrative Science and its Aboriginal community-based participatory action research project funded by CIHR-IAPH (Canadian Institutes for Health - Institute for Aboriginal Peoples’ Health). Her research within this project focuses on aspects of Mi’kmaq language that connect with healing and revitalization. Overall, the project is developing ways to help youth learn traditional Mi’kmaq and modern scientific understandings of our human relationships within nature. Through a focus on relationships that help foster our human sense of who we are (our sense of place, emergence, and participation), the project team hopes that various action-oriented sub-projects for youth can contribute to their growing and healthy sense of wholeness within their environment (family, community, and ecosystem).
Cape Breton – Unama’ki

Native Council of Nova Scotia
Mi’kmaq Language Program
Artist: Michael J. Martin
The central dilemma of science education today is the teaching of science from only one cultural perspective, and in an incomplete and non-connected manner.

Gregory Cajete, PhD, Univ. of New Mexico
Toqwa’tu’kl Kjijitaqnn
Integrative Science

Science: stories of our interactions with and within Nature

our knowledges
our world views
“bringing our stories together”

Indigenous
Western

Artist Basma Kavanagh
collaborative initiatives

post-secondary science education
collaborative initiatives

#1
post-secondary science education

#2
health research
collaborative initiatives

CAPE BRETON UNIVERSITY

health research

post-secondary science education

Bras d’Or Lake

environmental planning

#1

#2

#3

CIHR IRSC

#2
collaborative initiatives

CAPE BRETON UNIVERSITY

#1 post-secondary science education

#2 health research

#3 environmental planning

#4 archaeological interpretation

Bras d’Or Lake

CEPI

Mi’kmawey Debert
11 LESSONS LEARNED: We need to learn to ...

- acknowledge we need each other
- acknowledge we are on a learning journey
- learn to “co-learn”:
  - simple integrative framework
- help institutions to help us “legitimize” TK in the minds of youth (and many others)
- work with “living agendas”
- use other “organic language”
- do … in a creative “grow forward” manner
11 LESSONS LEARNED: (cont’d)
We need to learn to ...

- think “knowledge gardening” more than knowledge translation or knowledge transfer
- weave back and forth between our knowledges, our world views, our stories
- navigate our weaving via awareness of “big patterns” (knowledge orientations or maps)
- make our knowledges, i.e. our stories, visual
Albert Marshall, Mi’kmaq Elder
Eskasoni First Nation

Indigenous

Western
both Indigenous and Western, plus:

- role of me and you in “the knowing”
  - e.g. patterns: recognition & transformation
- our common ground
- our differences (and respect them)
- our journey … forward & together

AVOID … simply Western plus bits and pieces of Indigenous
“two-eyed seeing”
how our world is
interconnected
parts & wholes
“two-eyed seeing”
our key concepts & actions

- respect
- relationship
- reverence
- reciprocity
- ritual
- repetition
- responsibility

- hypothesis
  (making & testing)
- data collection
- data analysis
- model & theory construction
“two-eyed seeing”
our language & methodology

vigour
WEAVING

rigour
UN-WEAVING
“two-eyed seeing”
our overall knowledge objectives

towards resonance
of understanding
within environment

towards construction
of understanding
of environment
Family

from: Mi'kmaq Family & Children's Services

from: Society of Obstetricians and Gynaecologists of Canada
Health

Artist: Rod Restoule
from: Into the Daylight;
C. Morrisseau, 1998
Earth

Artist Basma Kavanagh
Sun
Science: stories of our interactions with and within Nature
Science: stories of our interactions with and within Nature
Aboriginal Community-Based Participatory Action Research

Integrative Health & Healing: co-learning our way to expanding wholeness through restoration of relationships with the land
“It’s time you learned about the healing tense.”
Decolonizing Research

- happens within and about Indigenous traditions beliefs and values
- adheres to Aboriginal protocols
- recognizes Elders and Knowledge-holders as “national treasures” and decision-makers
- engages Aboriginal researchers as investigators
- collaborative in design
- uses appropriate Aboriginal methodologies

*Opportunities in Aboriginal Research.*
Social Sciences and Humanities Research Council. 2003
Theoretical Pause

PAUSE THAT REFRESHES?
Integrative Health & Healing

• *co-learning* our way

• to expanding wholeness

• through restoration of relationships

• with the land
Mutual Commitment

• to the primacy of relationship
• to shared goals
• to shared ways of doing
• to new patterns of applied creativity
Animal Puppets for the 7 Teachings in association with Medicine Wheel

- Love
- Honesty
- Humility
- Respect
- Truth
- Patience
- Wisdom
Our Mi’kmaq youth seem lost.

There’s everything in the language that you want to know about yourself.

There’s something called the healing tense.
Conjugation

“to be drunk”

- ketkiay (present)
- ketkiayop (simple past)
- ketkiayasa *nek* (healing)
Nipuktuk Wejiaql A’tukuqaqnn: From the Forest Comes Our Story

www.christopherburkett.com
How Bullfrog was Conquered
How Bullfrog Learns His Lesson

Epilogue

Bullfrog: I know now that I was selfish and caused much suffering. I was wrong.
The Healing Tense Heals

“[Bullfrog] has taken his misdeeds and placed them in front of him and walked around them, and said yes, I was there.”

(Murdena Marshall, in conversation with Ivar Mendez)
How Bullfrog Learns His Lesson

Epilogue
Bullfrog: Meskey keskna oqmeyasnek
Hypothesis

There’s something called the healing tense.
Testing, Sample #1
Testing, Sample #2
We Heal Together

“...when he goes into this healing tense, then my attitude has to change ... everybody in the household, everybody ... has to abide with him.”

(Murdena Marshall, in conversation with Ivar Mendez)
Generalize

kesnukwiap – I was sick

kesnukwias nec – I was sick
Animal Puppets for the 7 Teachings in association with Medicine Wheel
“Love is the main ingredient of wellness.”

- Murdena Marshall

“The voice of our language is in the land.”

- Albert Marshall
Thank you

Mi’kmaw Elders

Cape Breton University

Mi’kmawey Debert

Royal Canadian Mounted Police

Gendarmerie royale du Canada