

**Integrative Science for the 21st Century:
“Two-Eyed Seeing”
and
“Pattern Recognition Conceptual Framework”**

presentation by:

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ABSTRACT, Part 1

Two-Eyed Seeing: “Integrative Science” is defined as “the bringing together of Indigenous and Western scientific knowledges”. It emerged at Cape Breton University (CBU) in Sydney, Nova Scotia, in the mid 1990's as a joint university-Aboriginal community initiative to bring innovation to university level science curricula and pedagogy, as part of an effort to attract more Mi'kmaq First Nations students into the post-secondary sciences (it is, however, open to all). Since its beginnings in the science education arena, Integrative Science at CBU has broadened to include a Tier 1 Canada Research Chair and projects in the arenas of science research (e.g. Aboriginal health, oyster diseases) and science applications (e.g. ecosystem stewardship and monitoring). Mi'kmaq Elder Albert Marshall of Eskasoni First Nation has offered Integrative Science the descriptive label of “Two-Eyed Seeing” in reference to one of its core principles, namely that we must learn to see from our one eye with the strengths of the Indigenous knowledges and ways of knowing, and from our other eye with the strengths of the Western (or Eurocentric, or conventional) scientific knowledges and ways of knowing ... and, furthermore, that we must learn to use them together in our contemporary projects and community endeavours for the benefit of all. This “together” often requires a “weaving back and forth between” the perspectives of Indigenous and Western knowledges, with conscious, mindful efforts to avoid the domination or assimilation that has marred Canadian history and still brings pain to many Aboriginal peoples across Canada today.

ABSTRACT, Part 2

Pattern Recognition Conceptual Framework: Towards Integrative Science-implicated research, a conceptual framework has been developed that is based in *pattern recognition and transformation*. It explicitly seeks to enable transit of pedagogy and praxis across the boundaries of methodologies, disciplines, and world views. Simply put, it is a three-piece iterative approach: (1) Observation of “external natural pattern” is sensory, drawing upon sanctioned or privileged perspective from methodologies, disciplines, or world views contextualized by mimesis (subject-subject participatory reciprocities) or alterity (subject-object causal relationships). (2) Interpretation is poietic, drawing upon sanctioned or privileged intelligences (from among those in Howard Gardner’s “multiple intelligences theory”) to yield “internal ideal pattern”. (3) Expression (communication, sharing) is kinetic, pulling this internal out as “external abstract pattern,” again drawing upon sanctioned or privileged intelligences. This research considers “science” to be “our stories re our interactions with and within nature”; obviously, stories can be told from different perspectives drawing upon different intelligences. This challenging, transdisciplinary and transcultural research attempts to abide by one of the major emergents from SSHRC’s “Dialogue on Research and Aboriginal Peoples” (2002-2003), namely that non-Aboriginal scholars, when working with Aboriginal peoples and/or their knowledges, should ***“walk beside or behind, but not attempt to lead”***. Overall, the research approach also strives to meet suggestions in UNESCO’s report from the 1999 World Conference on Science, subtitled “Science for the 21st Century, a new commitment” (<http://www.unesco.org/science/wcs/>), as well as the 2005 UNESCO world report entitled “Towards Knowledge Societies” (<http://unesdoc.unesco.org/images/0014/001418/141843e.pdf>).