

# UVic knowLEDGE

## IS ABORIGINAL KNOWLEDGE SCIENCE?

**Yes it is, say two UVic researchers who are helping to reshape the science curriculum in B.C. schools**

by Jessica Gillies

Lorna Williams and Gloria Snively are on a mission—slowly but surely, the two University of Victoria researchers are changing how science is taught in B.C. schools.

Williams, an assistant professor and director of aboriginal teacher education at the university, and Snively, an associate professor of science, environmental and marine education, are spearheading recent revisions to the provincial science curriculum that are bringing traditional aboriginal knowledge to B.C.'s science classrooms.

"Aboriginal knowledge, until now, has been invisible and devalued," says Williams, who is a member of the Lil'wat Nation from the B.C. Interior. "It was thought that in order to join the modern world we had to give up our traditional knowledge. We're here to say that it continues to exist and that it's valuable."

In 2002, when Williams worked as director of the aboriginal education enhancements branch of the B.C. Ministry of Education, she discovered that very few indigenous students were enrolled in senior-level high school science—courses that are essential for entry into post-secondary education and science-related careers.

"The statistics showed that the high school

graduation rate of aboriginal students was increasing, but what was that graduation leading to? They weren't taking the classes that would get them into university. This creates barriers and limits their career opportunities."

Something had to be done, so Williams called on Snively, a longtime friend. In partnership with the B.C. Ministry of Education, they created the Aboriginal Knowledge and Science Education Research Project to determine why aboriginal high school students are under-represented in the sciences and to find solutions.

Guided by Williams and Snively, 10 aboriginal and four non-aboriginal graduate students from UVic are working with First Nations elders, community leaders and educators to identify science content elements of aboriginal knowledge and determine the most culturally appropriate and effective ways of teaching and learning science.

"The big, central questions here are what is science, and is aboriginal knowledge science?" says Snively. "We're saying it is science, and that every culture has its own science. Right now, there's a complete blank—traditional knowledge is not only devalued, for most teachers it doesn't exist."

Using case studies, field studies, surveys, informal interviews and ethnography (such as elder circles, songs and traditional stories) the

graduate students are investigating topics as wide-ranging as how elders transmit ecological knowledge and wisdom, how science is taught through traditional storytelling, and how to use digital video as a learning tool for retaining and transferring aboriginal knowledge.

The results are being used by the ministry, program planners and teachers to develop culturally informed science materials for elementary and secondary schools across the province.

The changes should make science more relevant for aboriginal students who may previously have rejected it because it conflicted with their cultural value systems. "Our goal is to change the way science is taught so that indigenous knowledge has a respected place and children don't have to deny their identity to study a subject in school," says Williams.

Ultimately, the changes will benefit all students—young and old. "People tend to think that indigenous knowledge is only for aboriginal students, but it is of importance to everyone," says Snively. "It incorporates ecological wisdom in a very strong, holistic way, which is a key concept that all students should be learning."

► Snively, left, and Williams.



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According to B.C. Ministry of Education statistics, 12 per cent of aboriginal students take Biology 12, five per cent take Chemistry 12, and three per cent take Physics 12. By comparison, non-aboriginal enrolments in these courses are 29 per cent, 21 per cent and 13 per cent, respectively.

UVic graduate students involved in the Aboriginal Knowledge and Science Education Research Project are working with 12 First Nations communities in B.C., including the Gitga'at in Hartley Bay on the central coast, the Kwakiutl of Taskis (Fort Rupert), the Kwakwaka'wakw in Alert Bay off northeastern Vancouver Island, the Cowichan, and the Lil'wat Nation in the Interior.

Examples of aboriginal knowledge already integrated into the K-7 curriculum as a result of this study are: the activities of aboriginal peoples in B.C. in each seasonal cycle; how animals are important in the lives of aboriginal peoples; demonstrating the special significance of celestial objects for aboriginal peoples; and how aboriginal views of the interconnectedness of the environment are reflected in resource stewardship. The curriculum for Grades 8–10 is currently being revised.

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