Indigenous Education Renewal in Rural Alaska

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Indigenous education in rural Alaska has gone through a major transformation over the past 15 years focused on reconciling the conflicting worldviews, knowledge systems and ways of knowing that have coexisted in Native communities throughout the past century. Using a systemic approach to address long-standing problems, this column describes how Native people have taken the initiative in redefining the goals and methods of formal education as it has evolved in rural Alaska.

The Alaska Native/Rural Education Consortium, representing over 50 organizations impacting education in rural Alaska, established the Alaska Rural Systemic Initiative (AKRSI) in 1994. The Alaska Federation of Natives in cooperation with the University of Alaska, with funding from the National Science Foundation (NSF) and the Annenberg Rural Challenge (ARC), provided the institutional home base and support structure for the AKRSI. Its purpose was to systematically document indigenous knowledge systems of Alaska Native people and develop instructional practices that appropriately integrated indigenous knowledge and ways of knowing into all aspects of education. In practical terms, the most important intended outcome was an increased recognition of the complementary nature of Native and western knowledge, so both can be more effectively utilized as a foundation for the school curriculum and integrated into the way we think about learning and teaching.

For any significant initiative aimed at improving education in rural Alaska, it was essential to develop from the outset a working partnership of mutual respect and understanding between the Native and educational communities. The history of contradictions, confusion and conflict resulting from the coming together of two often incompatible cultural traditions and belief systems can best be overcome by drawing together the available expertise from each and exploring ways to arrive at an equitable synthesis. The first step in this endeavor was a series of colloquia on "Alaska Native Science Education" held in April 1992 and May1993, sponsored by the Alaska Federation of Natives and the University of Alaska Fairbanks with funding provided by the NSF. Topical areas that were addressed by the 60 broadly representative participants in the colloquia included Native scientific traditions, western scientific traditions, science practices in various community and institutional settings, science curricula in schools and universities, science teaching practices, and science teacher training opportunities. Out of these discussions, an extensive set of recommendations came forward regarding steps to be taken to improve the quality of science education, and education generally, for Alaska Native people. These recommendations served as the impetus for the formation of the AKRSI educational reform strategy. To help put these interrelated issues into perspective, I provide a brief overview of the cultural, geographical and political context in which its initiatives were formed and implemented.

Rural Alaska

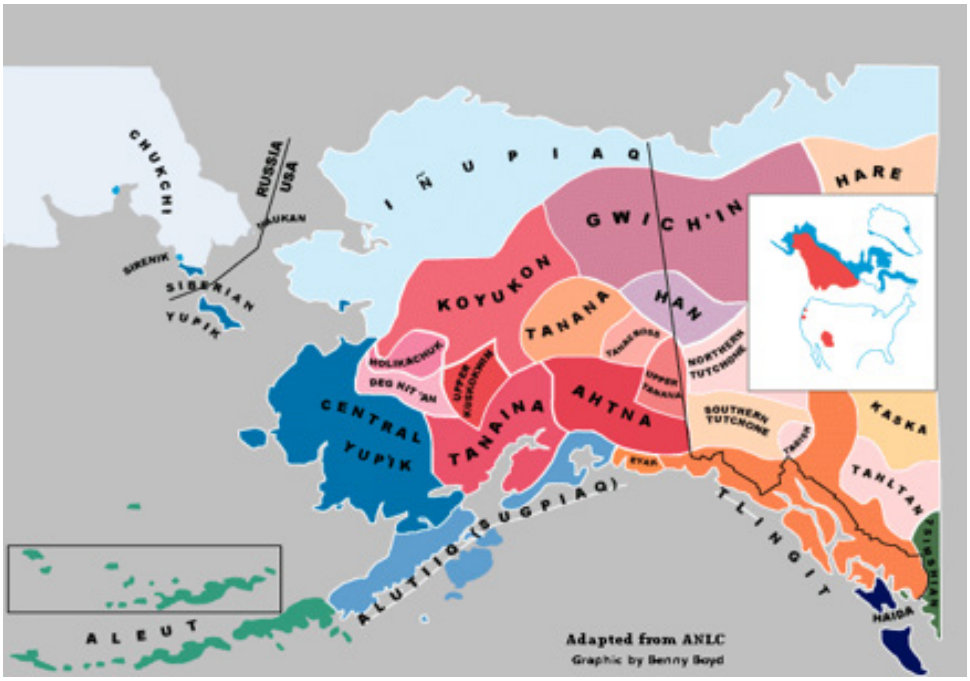
By most any standard, nearly all of the 586,000 square miles that make up the state of Alaska would be classified as "rural" with 40% of the 650,000+ people spread out in 240 small, isolated communities ranging in size from 25 to 5000. The remaining 60% are concentrated in a handful of urban centers, with the city of Anchorage and neighboring communities home to approximately 50% of Alaska's total population. Of the rural communities, over 200 are remote, predominantly Native villages in which 70% of the 90,000+ Alaska Natives live and practice their traditional cultures (see Table 1 on adjacent page). The vast majority of the Native people in rural Alaska continue to rely on subsistence hunting and fishing for a significant portion of their livelihood, coupled with a slowly evolving cash-based economy, though few permanent job exist in most communities.

Rural schools

Prior to 1975, the federal Bureau of Indian Affairs and the Alaska State-Operated School System operated schools in rural Alaska Both were centrally administered systems oriented toward assimilating Alaska Natives into mainstream society as their primary goal. The history of inadequate performance by these two centralized school systems, coupled with the ascendant economic and political power of Alaska Natives that derived from the passage of the Alaska Native Claims Settlement Act by the U.S. Congress in 1971, led to the dissolution of the centralized systems in the mid-1970s and the establishment of 21 locally controlled regional school districts to take over the responsibility of providing education

Table 1. Alaska Native Languages

Alaska Native Languages from http://www.uaf.edu/anlc/ Alaska Native Language Center



in rural communities. At the same time, a class-action lawsuit brought against the State of Alaska on behalf of rural Alaska Native secondary students led to the creation of 126 village high schools to serve those rural communities where high school students had to leave home previously to attend boarding schools.

Although the creation of the regional school districts (along with several single-site and borough districts) and the village high schools has provided rural communities with an opportunity to exercise a greater degree of political control over the educational systems operating in rural Alaska, it did not lead to any appreciable change in what was taught and how it was taught in those systems (Hopson, 1977). The continuing inability of schools to be effectively integrated into the fabric of many rural communities after over 20 years of local control points out the critical need for a broad-based systemic approach to addressing the deficiencies in educational conditions in rural Alaska.

Forging an emergent system of education for rural Alaska

In 1994 the Alaska Natives Commission, a federal/state task force established in 1992 to conduct a comprehensive review of programs and policies impacting Native people, released a report articulating the critical importance of any effort aimed at addressing Alaska Native issues needing to be initiated and implemented from within the Native community. The long history of failure of external efforts to manage the lives and needs of Native people made it clear that outside interventions were not the solution to the problems, and that Native communities themselves would have to shoulder a major share of the responsibility for carving out a new future. At the same time, existing government policies and programs would need to relinquish control and provide latitude for Native people to address the issues in their own way, including the opportunity to learn from their mistakes. It was this two-pronged approach that was at the heart of the AKRSI educational reform strategy—Native community initiative coupled with a supportive, adaptive, collaborative education system.

This strategy required a focus on both the formal education system and the indigenous knowledge systems in rural Alaska. The culture of the formal education system as reflected in rural schools was poised to undergo significant change, with the main catalyst being culturally-based and place-based curriculum grounded in the local culture (Barnhard, 2006, 2007). In addition, the indigenous knowledge systems needed to be documented, articulated and validated, again with a major catalyst being place-based curriculum grounded in the local culture. With these catalysts in mind, we sought to implement a series of initiatives that stimulated the emergent properties of self-organization that were needed to produce the kind of systemic integration indicated above. To do so, it was essential that we work through and within the existing systems.

Our challenge was to and targeting the elements of the existing educational system that could be harnessed to improve the education of Alaskan Natives. Once critical agents of change were identified, a "gentle nudge" in the right places could produce powerful changes throughout the system. With these considerations in mind, the overall structure of the AKRSI was organized around a comprehensive set of initiatives (five funded by the NSF focusing on math and science and five funded by the ARC focusing on social studies and language arts). Each of these initiatives was implemented in one of the five major Alaska Native cultural regions each year on an annual rotational scale-up schedule over a five-year cycle (which was renewed for a second five years). In this way, the initiatives could be adapted to the cultural and geographic variability of each of the regions, while at the same time engaging the state-level support structures throughout the cycle (see Table 2).

Along with the rotational schedule of regional initiatives, which were expanded in Phase II of the AKRSI, there were also a series of cross-cutting themes that integrated the initiatives within and across regions each year. While the regional initiatives focused on particular domains of activity through which specialized resources were brought to bear in each region each year (culturally aligned curriculum, indigenous science knowledge base, etc.), the following themes cut across all initiatives and regions each year:

1. Documenting cultural/scientific knowledge
2. Indigenous teaching practices
3. Culturally-based curriculum
4. Teacher support systems
5. Appropriate assessment practices

In this way, schools across the state were engaged in common endeavors that united them, at the same time that they were concentrating on particular initiatives in ways that were especially adapted to their respective cultural region. Each set of initiatives and themes built on each other from year to year and region to region through a series of statewide events that brought participants together from across the regions. These included working groups around various themes, Academies of Elders, Native educator associations, statewide conferences, the Alaska Native Science Education Coalition and the Alaska Native Knowledge Network.

Key agents of change around which the AKRSI educational reform strategy was constructed were the Alaska Native educators working in the formal education system, coupled with the Native Elders who served as the culture-bearers for the indigenous knowledge system, along with the Quality Schools Initiative adopted by the Alaska Department of Education. Together, these agents of change constituted a considerable catalytic force that has served to reconstitute the way people think about and do education in rural schools throughout Alaska. The AKRSI's role was to guide and support these agents through an on-going array of locally-generated, self-organizing activities that produced the organizational learning needed to move toward a new form of emergent and convergent system of education for rural Alaska (Barnhardt, 2009). The overall configuration of this emergent system can be characterized as two interdependent though previously separate systems being nudged together through a series of initiatives maintained by a larger system of which they are constituent parts, as illustrated below.

The components of the emergent system, incorporating the indigenous knowledge sub-systems and the formal education sub-systems, were brought in contact with one another with an increasing level of two-way interaction, which slowly built the interconnectivity and complementarity of functions that were the goal of the reform strategy. Each of the initiatives associated with the two sub-systems, as represented below (see Table 3) by the converging reform streams, served as a catalyst to energize the sub-systems in ways that reinforced the overall AKRSI efforts. For example, the Alaska Native Knowledge Network assembled and provided easy access to curriculum resources that supported the work underway on behalf of both the indigenous knowledge systems and the formal education systems. In addition, the bi-monthly newsletter, ANKN newsletter, Sharing Our Pathways (for sample articles see Barnhardt & Kawagley, 2011), provided an avenue for on-going communication between all elements of the constituent systems. Concurrently, the AKRSI collaborated with the Alaska Department of Education in bringing Native/science teachers together to develop performance standards based on the state science standards that took into consideration the cultural context in which students acquired and demonstrated their knowledge. These performance standards then became part of the states performance assessment system to be implemented in all schools.

Together, these initiatives (along with other related activities) constituted the AKRSI and were intended to generate a strengthened complex adaptive system of education for rural Alaska that could effectively integrate the strengths of the two constituent emergent systems. Accepting the open-endedness and unpredictability associated with such an endeavor, and relying on the emergent properties associated with the adage, "think globally, act locally," we were confident that we would know where we were going when we get there. It was the actions associated with each of the initiatives that guided us along the way, so that we could continue to move in the direction established by the AKRSI educational reform strategy.

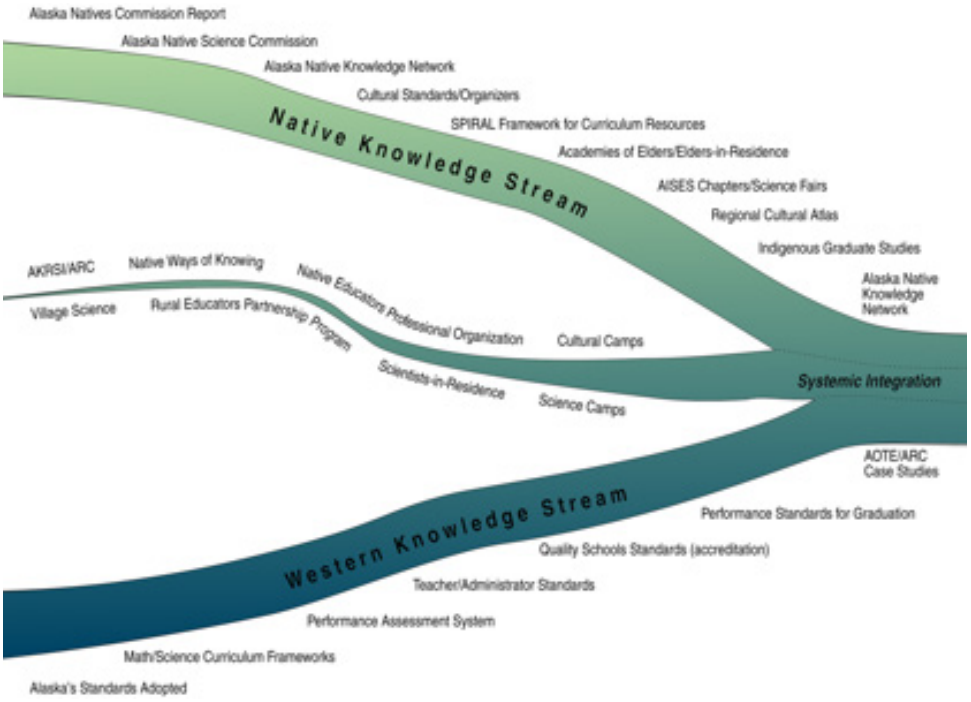
Intervention activities: An overview

AKRSI-sponsored initiatives included the development of a spiral curriculum framework revolving around 12 broad cultural themes of family, language/communication, cultural expression, tribe/community, health/wellness, living in place, outdoor survival, subsistence. Students interviewed Elders in their communities and researched available documents related to the indigenous knowledge systems, and then assembled the information they gathered into a multimedia format for publication as a "Cultural Atlas" available on CD-ROM and the Internet. Documentation focused on themes such as weather prediction, edible and medicinal plants, geographic place names, flora and fauna, moon and tides,

Table 2. NSF/ARC Phase I Yearly Cycle of Activities by Cultural Region

NSF						Annenberg
Rural Systemic Initiative/ Year (1995-2000)	**1995-96**	**1996-97**	**1997-98**	**1998-99**	**1999-2000**	**Rural Challenge Initiative/ Year (1996-2000)**
Native Ways of Knowing/ Teaching	Yup'ik Region	Inupiaq Region	Athabascan Region	Aleut/Alut. Region	Southeast Region	**ANCSA & the Subsistence Econ.**
Culturally Aligned Curriculum	Southeast Region	Yup'ik Region	Inupiaq Region	Athabascan Region	Aleut/Alut. Region	**Language/Cultural Immersion Camps**
Indigenous Science Knowledge Base	Aleut/Alut. Region	Southeast Region	Yup'ik Region	Inupiaq Region	Athabascan Region	**Oral Tradition as Education**
Elders and Cultural Camps	Athabascan Region	Aleut/Alut. Region	Southeast Region	Yup'ik Region	Inupiaq Region	**Reclaiming Tribal Histories**
Village Science Applications	Inupiaq Region	Athabascan Region	Aleut/Alut. Region	Southeast Region	Yup'ik Region	**Living in Place**

Table 3: Native and Western knowledge systems are integrated in the AKRSI



fisheries, subsistence practices, food preservation, outdoor survival and the aurora.

Associations of Native educators were also formed in each cultural region to provide an avenue for sustaining the initiatives being implemented in the schools by the AKRSI. The regional associations sponsored curriculum development work, organized Academies of Elders and hosted regional and statewide conferences as vehicles for disseminating the information that was accumulated. Each cultural region engaged in an effort to distill core teaching/learning processes from the traditional forms of cultural transmission and to develop pedagogical practices in the schools that incorporated these processes (e.g., learning by doing/experiential learning, guided practice, detailed observation, intuitive analysis, cooperative/group learning, listening skills).

Native educators convened with Native Elders around local themes and in a deliberative process in which Elders shared their traditional knowledge and the Native educators sought ways to apply that knowledge to teaching various components of a culturally-based curriculum. The teachers then field-tested the curriculum ideas they had developed, brought that experience back to the Elders for verification, and then prepared a final set of curriculum units that were pulled together and shared with other educators.

A set of "Alaska Standards for Culturally Responsive Schools" were developed for students, teachers, curriculum, schools and communities that provided explicit guidelines for ways to integrate the local culture and environment into the formal education process so that students are able to achieve cultural well-being as a result of their schooling experience. In addition, three volumes of village oriented science and math curriculum resources were developed in collaboration with rural teachers for use in schools throughout Alaska (see Dick, 1997, 2012; Stevens, 2000). These resources serve as a supplement to existing curriculum materials to provide teachers with ideas on how to relate the teaching of basic science and math concepts to the surrounding environment.

K-12 chapters of the American Indian Science and Engineering Society (AISES) were formed in rural districts serving each cultural region. These chapters participated in AISES Science Camps and sponsored Native Science Fairs in which the projects are judged for their science content by experienced science teachers and for their cultural content by Native Elders. The winners of the regional fairs attend the Alaska State Science Fair in the spring.

The Alaska Native Science Education Coalition was formed with representatives from over 20 agencies, professional organizations and other programs with an interest and role in science and math education in rural Alaska schools. The Coalition brought its vast array of curriculum and professional development resources into focus around the implementation of place-based and culturally-based science curriculum, including the incorporation of rural/cultural considerations in the Coalition members own materials and practices (e.g., Alaska Science Consortium workshops, Alaska Energy curriculum resources, Alaska Environmental Literacy Plan, Project Wild curriculum materials, National Park Service interpretive programs).

Finally, performance standards in the areas of math and science were developed to serve as benchmarks for the state assessment system in those content areas. Through AKRSI support, representation from rural/Native communities helped to incorporate the various cultural and geographic perspectives needed to provide equity in the assessment process.

Has the AKRSI made a difference?

After ten years, data gathered from the 20 rural school districts involved with the AKRSI (compared to 24 other rural Alaskan districts) indicated that its educational reform strategy fostering interconnectivity and complementarity between the formal education system and the indigenous communities being served in rural Alaska had produced an increase in student achievement scores, a decrease in the dropout rate, an increase in the number of rural students attending college, and an increase in the number of Native students choosing to pursue studies in STEM (science, technology, engineering and math) fields.

The initiatives listed above demonstrated the viability of introducing strategically placed innovations that can serve as catalysts around which a new, self-organizing, functionally-integrated educational system can emerge which shows signs of producing the quality of learning opportunity that has eluded schools in Native communities for over a century. The substantial realignments are evident in the increased interest and involvement of Native people in education in rural communities throughout Alaska point to the efficacy of a systemic approach in shaping reform in educational systems.

We capitalized on a broadly supportive climate to introduce changes that have **benefited** not only rural schools serving Native students, but have been instructive for **all schools** and **all students**.

While the original NSF funding of the AKRSI served as the catalyst for the core reform strategy, we were fortunate to acquire substantial supplementary funding to address areas for which its funds were not suitable, such as indigenous curriculum materials development (from the NSF Division of Instructional Materials Development), and implementing comparable initiatives to those of the AKRSI in the areas of social studies, fine arts and language arts (from the ARC). All of these funds were combined to provide an opportunity to address the issues facing schools in Native communities throughout rural Alaska in a truly comprehensive and systemic fashion.

As a means to help document the process of systemic reform in rural schools, we joined in two projects that produced comprehensive case studies of educational practices and reform efforts in nine rural communities/schools in Alaska. Seven of the case studies were funded through the Northwest Regional Educational Laboratory by a field-initiated grant from the National Institute for At-Risk Youth under USDOE, and the other two were administered by Harvard University through a grant from the Annenberg Foundation. Since all of the communities were in school districts associated with the Alaska Rural Systemic Initiative, we were able to obtain a good cross-section of in-depth data on the impact of the AKRSI reform effort over the ten years of its existence.

Throughout these initiatives we were mindful of the responsibilities associated with taking on long-standing, intractable problems that have plagued schools in indigenous settings throughout the world for most of the past century, and we made an effort to be cautious about raising community expectations beyond what we could realistically expect to accomplish. We were also mindful of the larger context in which the AKRSI was situated and the expectations of the funding agencies with mandates to support initiatives that can contribute to a larger national agenda. Our experience was such that we were confident in the route we chose to initiate substantive reforms in rural schools serving Alaska's Native communities, and while we expected to encounter plenty of problems and challenges along the way, we capitalized on a broadly supportive climate to introduce changes that have benefited not only rural schools serving Native students, but have been instructive for all schools and all students. We continue to explore these ideas and find ways to strengthen and renew the educational systems serving people and communities throughout our society.

Note:

This column is adapted from Dr. Barnhardt's keynote speech at the Third Annual American Indian Teacher Education Conference given on July 14, 2012 in Flagstaff, Arizona.

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