

Building and Maintaining Successful Relationships between Reservation and University Programs: Summer School Experiences on the White Earth Reservation

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ABSTRACT

Building and maintaining successful relationships between Indian reservations and University faculty create opportunities to improve educational outcomes for American Indian students and increase the diversity of young people who consider attending college. The University of Minnesota and the White Earth Reservation developed an ongoing, outdoor-based summer school program on the Reservation, which has been successful in a number of ways. Factors to consider in the development and maintenance of such a cross-cultural program are presented.

Keywords: American Indian, youth, education, natural resources

American Indian and Alaskan Native students have the highest dropout rate of any ethnic group in the country. According to the US Department of Education, as many as 60% of those students enrolled in school may not graduate (Young 2003). Concerns have been expressed about the current educational system's failure to meet the needs of American Indian students, especially those students who remain on reservations.

Traditional systems of American Indian education, which used to transfer skills and knowledge from one generation to the next, developed over thousands of years. In these systems, students were not allowed to fail.

The family, clan, tribe, and responsible mentors worked with the youth until the information or task was learned. Lessons were an integrated part of daily life and ceremonies, not a separated or isolated activity (Demmert 2001). When young people were no longer learning from tribal elders and other adults in the community, Native students began experiencing high levels of educational failure and a growing ambivalence toward learning traditional skills and ceremonies.

For generations, the Ojibwe people living on the White Earth Reservation in northwestern Minnesota followed the cycle of seasons through hunting, fishing, harvest-

ing wild rice from the lakes in late summer, and boiling maple sap in the spring (Brown et al. 1989). This cycle mirrored their view that all life is part of a harmonious circle. Science and math became an integral part of that cycle through activities such as the gathering and processing of natural resources and when calculating travel distances and times between summer and winter camps. In recent years, many tribal members, especially the younger ones, have abandoned traditional ways of life and lost the complex skills that accompanied their seasonal rituals.

Today, the challenges facing youth on the White Earth Reservation are similar to those on many reservations in the United States. One-third of the people live in poverty (Northwest Area Foundation). In 2000, 87.9% of Minnesotans over age 25 years had at least a high school diploma (Brown 2003). Only 71.1% of American Indians and Alaskan Natives in Minnesota attained that level of education. Reservation members have attributed the high dropout rate within their high schools to a lack of confidence and interest in science and math

(Andy Favorite, Director of Archives and History, White Earth Reservation, personal communication, August 1998). All students attending schools on the Reservation qualify for free or reduced-price lunches, an indicator of poverty. Although the number of substance abuse and violence incidents reported by the Bureau of Indian Affairs Office of Indian Education Programs is decreasing, it is still an issue of concern within Reservation schools (Bureau of Indian Affairs). The rate of suicide among American Indians in Minnesota is over twice that of all other racial and ethnic groups (Minnesota Department of Health).

This article presents information about a successful partnership that began in 1998 to address some of the concerns on the White Earth Reservation. It includes background information about the partnership, design, and delivery of the White Earth Reservation Science and Math Summer Program for youth, some of the successes achieved, and key factors that have helped to build and sustain the program.

Background

The collaboration between the University of Minnesota and the White Earth Reservation began in 1998 when campus faculty visited the Reservation to explore ways in which the two entities could work together in areas of mutual interest. Areas of greatest concern to the Reservation hosts were the defeatist attitude among youth, high dropout rates from schools serving American Indian youth, and the erosion of traditional skills and knowledge of their Ojibwe culture. In response to these concerns, Reservation natural resource managers, tribal teachers, elders, and University faculty pooled their talents and resources to design the White Earth Reservation Science and Math Summer Program that was launched in 1999.

The program evolved over time through a series of meetings during which session planners first got to know each other and developed a comfortable working relationship, had subsequent discussions about cultural aspects and the roles of each participant, and identified the curriculum. A 6-week outdoor-based summer educational program was developed for delivery Monday through Friday in June and July 1999. The program focused on American Indian youth in grades 8 through 12. In 2003, the program was modified to be 4 weeks long (so that it ended by July 4) and to focus on

youth in grades 5–8 (to reach youth earlier in their thought process about the environment). Of the approximately 20 students annually enrolled, there has been a relatively similar level of participation from each grade level. The natural resources of the Reservation were used to instill respect and appreciation for the traditional ways while functioning as a vast laboratory in which to experiment and learn about the disciplines of science and math.

White Earth Reservation natural resource managers; teachers from the Reservation's Circle of Life School; elders and other tribal members; and faculty, graduate students, and program assistants from the University of Minnesota presented the program. Whenever possible, instructors operated as a team, with the elder(s) presenting the cultural perspective, a local natural resource manager talking about the tribal resource management perspective, and the University of Minnesota team member(s) providing science and math information as well as guidance on how to design and conduct the hands-on experiences. In addition to being educators, the local resource managers also served as role models for the students.

Instructors from the University of Minnesota were given various background readings to help them better understand the Reservation and instruction of American Indian youth (e.g., Garrett [1995]). Other information was communicated to those instructors through face-to-face meetings, e-mail messages, and phone conversations to help them better understand the program's focus, to suggest appropriate Reservation contacts, and to discuss program content and delivery.

Using a place-based curriculum (Smith 2002) in partnership with a reservation provides ample opportunities to engage students in informal science discoveries that demonstrate parallels between indigenous and Western science knowledge. The White Earth model incorporates many of the curriculum themes reported by Bengston (2004). Specific themes include language (e.g., how to say keywords in Ojibwe), culture (e.g., using ceremonies, blending western science with traditional knowledge), history (e.g., glaciation, how the reservation got its name—from the white clay soils), natural resources (e.g., soils, forests, and wildlife), gardening (e.g., plant selection and tending), traditional foods (e.g., making breads and preserving berries), and Native crafts (e.g., making black ash baskets or a birch bark canoe). Students generally work on a

project throughout the session. Examples have included designing plans for an environmental learning center for the Reservation, building a full-size birch bark canoe, and producing a video documentary of the Reservation. Examples of how the curriculum is designed are as follows:

Soils. Students learn that the White Earth Reservation derived its name from the white clay that is found in areas on that reservation. Years ago, bricks were formed from that clay to construct the Circle of Life School that the students attend. A potter from the area worked with the students to produce pots made from the local clay. University faculty provided the tools and testing equipment to allow students to take soil samples, identify various soil types through feel and testing water infiltration, read and interpret soil maps and soil surveys, and condition soils for flower and vegetable gardening.

Forestry. Students visit various forest types on the Reservation and examine relationships between soils, plant communities, and wildlife. Elders show how to pound black ash logs to make splints that are used for making traditional baskets. Tribal foresters discuss how forest management practices impact the availability of black ash trees for baskets and other uses. University faculty offer classes on tree identification, forest ecology, forest management, forest measurements, paper making, and nature printing to complement the indigenous teachings of the elders.

Traditional Foods. Tribal nutrition education assistants offer classes on traditional foods that were commonly used by the Ojibwe people. These classes include traditional preparation methods, spiritual meaning of specific foods, and the nutritional value of these foods in the Ojibwe diet. Food topics are related to the natural resources topics each week. When students study fish populations and water quality, their nutrition lesson includes fish and wild rice preparation. Forestry classes lend themselves to nutrition lessons on wild game preparation and the preservation of fruits and berries. Students learn how management practices can enhance the availability of high-quality locally produced foods that were once a mainstay of the Ojibwe diet. Emphasis on tradi-

Table 1. Daily summary for week 3 during the 2004 White Earth Reservation Science and Math Summer Program (forestry and wildlife were the themes for this week).

Time	Monday, June 21	Tuesday, June 22	Wednesday, June 23	Thursday, June 24	Friday, June 25
9:00 am	Ojibwe culture	History of wild rice	Ojibwe culture and values	Tracking	Ojibwe culture
10:00 and 11:00 am	Bread baking	Preparing venison and wild rice	Forest wildlife habitat	Forest measurements; GPS area determination	Community video interviews
10:00 and 11:00 am	Nature prints	Paper making	Tree identification; GPS navigation	Wildlife feeding habits	Wetland plants and wildlife
Noon	Lunch	Lunch	Lunch	Lunch	Lunch
1:00 and 2:00 pm	Handmade soap making	Wildlife identification	Birch bark basket making	Nature prints	Prairie biomes
1:00 and 2:00 pm	Gardening	Forest products	Forest management practices	Forestry scavenger hunt	Burial sites

tional diets is of special interest to American Indians given the high rate of type 2 diabetes found on most reservations in the United States (Anonymous 2002).

Students arrived at the school on a school bus and were served breakfast at 8:30 am. Serving breakfast and lunch were important ways to ensure that the participants had access to at least two meals during summer school. Generally, students were transported to a field site on or near the Reservation via school bus at 9:00 am. Off-Reservation field tours have included visits to postsecondary institutions, state parks, and wildlife refuges. Between two and five topics were delivered daily with students rotating between topics after approximately 1 hour. By conducting concurrent sessions, more hands-on small group opportunities could be provided. The students returned to the school by 2:30 pm for a wrap-up session (e.g., write in a daily journal, take a posttest covering daily activities, and work on their session project) before being bused home at 3:00 pm. Week 3 of the 2004 program is shown in Table 1. That week had an emphasis on forestry and wildlife. Other weekly themes have included water resources and horticulture.

Success of the summer program led to other joint ventures between the University of Minnesota and the White Earth Reservation. For example, in October 2002, a major cleanup effort was undertaken on a 40-ac forested parcel adjacent to the school property to create a School Forest. Training on the use of the *Project Learning Tree* curriculum was offered to over 40 teachers and staff at the Circle of Life School, introducing them to the many ways that the School For-

est could enrich classroom instruction throughout the academic year. The Circle of Life currently uses the School Forest throughout the academic year as well as during the summer sessions. Starting in 2005, involvement in a new K–6 program is providing natural resource topics to over 100 additional youth on the White Earth Reservation.

Involvement of the University of Minnesota personnel during the planning and delivery of the first 3 years (1999, 2000, and 2001) of the White Earth Science and Math Summer Program was largely facilitated through a grant from the University of Minnesota Extension Service. During 2002 and 2003, funds to support the University's involvement largely came from the Minnesota Campus Compact, a nonprofit coalition of 49 college and university presidents. Both grant sources provided funds for travel, lodging, and supplies. The White Earth Tribal and Community College funded the 2004 and 2005 summer sessions using USDA grants.

Program Evaluation

The program planners used a variety of mechanisms to evaluate its effectiveness. They included pre- and posttesting of students using standardized Terra Nova Test instruments; daily journaling by observers who chronicled various items each day; weekly tests aligned with daily lessons; and focus groups with University of Minnesota campus faculty, instructors, and Reservation planning team members. In the following, some of the specific outcomes are noted:

1. Retention rates exceeded expectations with more than 60% of the enrolled stu-

dents successfully completing the program each year during the 3-year pilot phase. Absenteeism rates during the academic school year for the grade levels addressed by the math and science program are much higher than during the summer program and exceeded 50% on most days.

2. Test scores in math improved by 1.2 years and science scores improved 0.2 years after the 1999 6-week program, as measured by the Terra Nova Test. This was a substantially higher gain than shown by students after a full year of instruction in a conventional classroom. Since 1999, student proficiency levels throughout the entire school have shown gradual but significant gains. Test results in 2002 showed that only 39% of students were proficient in math. In 2003, 59% were proficient in math. In 2002, 52% of students were proficient in science as compared with 66% in 2003. Before the White Earth Science and Math Summer Program and enrichment programs offered during the academic year, only 30% of the Circle of Life students were proficient in math or science.
3. Circle of Life School teachers reported that they learned new ways of teaching that incorporated hands-on learning activities into the classroom. Tribal teachers and students recognized that learning about natural resources is more meaningful when the lessons take place in the environment that they are learning about.
4. All teachers at the Circle of Life School now have access to the School Forest and have the *Project Learning Tree* curriculum. The school superintendent sup-

ports teachers getting students outdoors as much as possible.

5. Over 35 University of Minnesota faculty, staff, and students have worked directly with the White Earth Reservation students since 1999. The rate of returning faculty is more than 90% each summer. This ongoing relationship building has led to enhanced opportunities for University faculty to be engaged with Reservation teachers, students, and natural resource managers throughout the academic year.
6. University of Minnesota faculty participants reported that they felt better prepared to be effective instructors and advisors to American Indian students who enroll in their classes.
7. University of Minnesota faculty and students are learning about Ojibwe traditions and ceremonies.
8. The program received state and national recognition during the 3-year pilot phase. Awards include (a) the 2000 Natural Resources and Environmental Management National Flagship Award from USDA, (b) the 2000 University of Minnesota Extension Service Diversity and Inclusion Award, (c) the 2001 USDA Secretary's Honor Award for brightening the future of American Indian youth by teaching science and math while nurturing environmental and cultural appreciation, and (d) the 2001 Bureau of Indian Affairs Award for excellence in science education by the Circle of Life science teacher.

The summer school is successful because each partner provides a unique set of resources that, when combined, make a comprehensive program that can not be delivered by any single entity. Also, partners have established considerable trust through open communications, well-defined roles, and shared leadership. There is a demand for a similar program on other reservations in Minnesota.

Factors to Consider for Building and Maintaining a Successful Partnership

Looking back, it is important to consider the following factors when approaching a similar type of partnership:

- Whenever possible, include one or more American Indians from the reservation who received one or more degrees from a

nontribal higher education institution. Those individuals can help bridge cultural and educational differences.

- Allow adequate lead time to secure funding, identify instructors, and prepare the curriculum.

- Invest the necessary time upfront to develop trust among the reservation and university partners. Developing trust usually will not occur immediately and can take months and multiple encounters in formal and informal settings. It is unrealistic for every faculty member to have ongoing contact with reservation partners given travel and time restrictions. An effective model includes having one or two faculty who live close to a reservation participate in the ongoing planning meetings and invite faculty from a distance to offer specific classes during the delivery of the program.

- Understand the culture and traditions of each partner. Understanding and being aware of cultural similarities, differences, and concerns will help find common ground. Identify and honor the important values and traditions of partners. Participate in ceremonies and celebrations such as powwows if offered the opportunity.

- Reservation partners should feel comfortable discussing with university partners the cultural norms that determine whether photos or videos can be taken during ceremonies, whether animals can be dissected for use during anatomy classes, who is allowed to participate in ceremonies, and when to use tobacco as a symbol of gratitude to an elder or the Creator.

- Secure administrative and staff support from the outset. Committing to this kind of work requires a high level of support throughout the process.

- Hold off on offering suggestions until you understand what the community values. If university faculty enter this type of relationship thinking they know the solution before fully understanding the problem and the context of the situation, it will likely fail.

- Be realistic about what you can and can not deliver.

- The university's involvement with projects on a reservation frequently is short term (e.g., 2 or 3 years for a graduate student project). At the end of the project, the reservation partners may get back little useful information from the university, which will help them address their local problems. As a result, they may be skeptical about developing new relationships. Be clear about the reasons that university faculty and students

want to be involved in a partnership with a reservation.

- Potential partners may have had previous experiences with the university that weren't positive. It may be important to openly recognize the past, even if it did not involve present personnel, to move forward. Understanding that past can help identify potential pitfalls to avoid in the future.

- Identify a key trusted reservation contact that will identify potential pitfalls if certain topics or individuals are included in the program. Areas of conflict may exist between certain entities on the reservation that a faculty member may not recognize.

- Understand that although American Indians have a lot of knowledge about natural resources (or some other topic), their knowledge may not be based on the strict scientific doctrine that many university faculty grew up learning and practicing. By becoming familiar with other knowledge bases, such as the Alaska Native Knowledge Framework (Alaska Native Knowledge Network 2003), faculty can be more effective instructors with American Indian youth.

Summary

Creating a long-term partnership between a reservation and university faculty requires a tremendous commitment of time and patience to develop trust and learn how to work together. This trust building requires frequent face-to-face meetings to first share who we are as people and, second, what we have to offer as educators. We learned to honor the values and traditions that the tribal partners wanted to include in the summer program while designing practical hands-on activities that would incorporate science and math concepts. A lot of listening occurred before developing the curriculum.

The specific ingredients that build success with one group may not result in a similar outcome when applied elsewhere. However, paying attention to the factors identified here could help anyone who is not familiar with working with nontraditional audiences.

Do not be afraid to get involved. The rewards can be huge both professionally and personally. Providing a service that is valued by partners can help open doors to many future program opportunities. Although some of those opportunities may be with the same audience, inquiries may come from other areas as the word spreads.

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