

**A CASE STUDY
OF
NAH TAH WAHSH PUBLIC SCHOOL ACADEMY
AND ITS ROLE AS A PARTNER IN THE NSF-SUPPORTED
MICHIGAN RURAL SYSTEMIC INITIATIVE**

**Prepared for the
NSF Rural Systemic Initiatives Evaluation Study**

**Submitted by
The Evaluation Center
Western Michigan University
Kalamazoo, MI 49008-5237**

January 2003

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by

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Foreword

On behalf of The Evaluation Center at Western Michigan University, I want to thank the administration, faculty, and staff of the Nah Tah Wahsh Public School Academy for its willingness to be a part of the Rural Systemic Initiatives Evaluation Study for the National Science Foundation. Especially, I want to thank Mr. Rich Sgarlotti for his willingness to serve as the primary host for the visitation team. A special thanks to regional facilitator Michelle Wellman for making the long drive to meet with us during each visit.

It was a pleasure to serve as the leader of the visitation team, and I thank the other members of the team (Dr. Jerry Horn and Mr. Paul Nachtigal) for their dedication and commitment to the study. Their efforts will enable NSF and other decision makers to identify existing strengths, barriers, and progress in the RSI-participating school districts. Finally, I want to thank members of The Evaluation Center staff for their assistance in editing and preparing the final version of the case study report.

Brian Lotven

A Case Study of the Nah Tah Wahsh Public School Academy and Its Role as a Partner in the NSF-Supported Michigan Rural Systemic Initiative

The Evaluation Center (EC) at Western Michigan University (WMU) is engaged in a study of the Rural Systemic Initiatives (RSI) with support from the National Science Foundation (NSF). The RSI program is intended to improve science, mathematics, and technology education in rural and economically disadvantaged regions through collaborative efforts involving K-12 school districts, four-year colleges and universities, community colleges, community organizations, and other stakeholders.

The project began in 1999 and was designed around a plan to examine selected RSI collaboratives: the Appalachian, Delta, and UCAN. EC staff decided to conduct case studies in two communities in each of the three chosen collaboratives as the core of the project. Because these collaboratives had been operational for two or more years, a “post hole” type case study (the study is unique and should not be evaluated by a model that was conceived somewhere else) was conducted. A team of two to four professionals conducted on-site visits that included interviews and focus group meetings with teachers, administrators, students, and selected members of the community. The team also reviewed documents and observed classrooms and facilities over a period of three to five days.

As available, RSI project personnel were included in the interview process in an effort to gain their perspectives of the collaborative’s work as well as the implementation process at the local level. The team “lived” in the community during the time of the visits in an attempt to more fully understand the context of the school and the environment/community in which the RSI was engaged. The case study reports were completed, reviewed at the local level for accuracy, and submitted to NSF. Summaries of the evaluative procedures and the findings and reports were also disseminated at meetings of professional groups of science, math, and rural educators as well as to other researchers as requested and deemed appropriate.

In 2000, the NSF asked The Evaluation Center to expand the study to include three new RSI collaboratives and to extend the project through May 2003. The new collaboratives included the Texas RSI, the Michigan RSI, and the Coastal RSI. The same overall objectives for the evaluative study were applicable to the new RSIs, and four new questions were added. The additional questions related to new or alternative forms of student assessment, the contextual factors of the communities that support educational reform, the processes and conditions that facilitate effective operation, and the use and value of technology.

The Texas RSI became operational in 1999 and later divided into southern and northern groups with additional funding from NSF in 2001. The Coastal and Michigan RSIs became operational in 2001. The post hole case study approach, as a part of the overall study in the initial WMU evaluation with the more mature collaboratives, was judged as inappropriate and unfair for those that were in their early stages of development and operation. Instead, the evaluators decided to employ a longitudinal case study approach consisting of three visits over a two-year period to three sites in each of the new collaboratives. Even then, the time frame is relatively short, which is a limitation of the overall study and particularly the study of individual collaboratives.

Site visit teams were formed and began gathering data during the 2001-2002 school year. The final visit of a study team to each case study community was conducted in Fall 2002.

Each case study team was composed of at least one project staff member and at least one member of the Research Advisory Team (RAT). The RAT member was selected on the basis of his/her special expertise or experience with an issue or condition determined to be a relevant

factor in the case study. In the case of the Nah Tah Wahsh Public School Academy, Paul Nachtigal, a longtime leader in rural school research and a member of the Research Advisory Team, served as a member of the site visit team. A case study visitor's guidebook was used to provide direction and format for the interviews in addition to specific and general questions to be addressed.

The case studies were designed to reflect an understanding of the variables within a school community that either support or serve as a barrier to education reform. The role of the RSI in the reform effort was the primary focus. The RSI may be one of several independent initiatives for school improvement but should be a major source of input with regard to math and science education. Clear evidence of impact, including consideration of different types of evidence reflecting student learning, is important. Sources of positive effects of the RSI included traditional forms of student assessment; enrollment in advanced science, math, or technology courses; pursuit of careers requiring strong science, math, or technology backgrounds; and student work samples from independent investigation.

A plethora of social, economic, geographic, cultural, and other factors make comparisons of rural schools with suburban and urban schools problematic. These case studies focused upon the communities involved without preconceptions related to consolidation; depth/breadth of science, math, and technology offerings; qualifications of teachers; or other site-situational factors. Rather, the focus was on the schools as an integral part of the community and the effects of the community values of education and schooling. Social research speaks to the significance of the community power structure with regard to schools and schooling. Decision making, power brokering, written and unwritten understandings are all part of "doing business" in rural communities. Clearly, the RSI project was an external intervention, and one reason for making the study longitudinal was to allow more opportunities for interaction within the school and the community.

Although all of the case study sites are rural and poor (by definition and as criteria for participation), each is quite unique in terms of history, racial and ethnic makeup, property values, governmental jurisdiction, and site situation. All of these factors play a part in the lineage of public education in each community. The site visit team made every effort to identify significant events that contributed to the shaping of public education in these areas. In essence, what evolves is a story about the community from the eyes and ears of outsiders, but with a strong sense of understanding about rural schools and communities.

The Coastal RSI case studies focused on school districts in Charles City, Virginia (Charles City Middle School); Elizabeth City, North Carolina (Pasquatank High School); and Marion, South Carolina (Marion Intermediate School). The case study school communities in the Texas RSI collaborative were Carrizo Springs, Clarendon, and Pittsburg. In Michigan the evaluation project looked at two traditional public school communities--Baldwin and Whittemore-Prescot--and one state-approved and -funded charter school that serves a Native American community--Nah Tah Wahsh Public School Academy.

Hannahville Indian Community History

“Anishnabe” was the word used to describe the Algonquin forefathers of the present day Potawatomi Tribe. The Potawatomi culture has a unique history, values, and customs. The traditional homeland of the Potawatomi Nation was on the southern shores of Lake Michigan. With the arrival of white settlers, the United States government gradually took all of the Potawatomi lands. Successive treaties provided for the Tribe’s relocation to Kansas. In 1863, the Army forcibly removed most of the Potawatomi from the Great Lakes region. They were marched to Kansas and are now known as the Prairie Band.

Many Potawatomi who witnessed this early phase of removal fled to maintain their freedom. Some of these refugees traveled across Lower Michigan and headed for Canada. The main line of retreat, however, was up the western shore of Lake Michigan. A large group settled in Forest County, Wisconsin, and currently comprises the Mole Lake Reservation. Other groups continued north. One group remained in the vicinity of the Cedar River until 1883 when they moved to unoccupied land near Wilson, Michigan. A Methodist missionary settled among this group of Potawatomi, and the community was named Hannahville after the missionary’s wife. These Potawatomi remained as squatters until 1913 when Congress appropriated Tribal Claims Settlement monies to purchase 3,408 acres of land for the Hannahville Indian Community. The Hannahville Community was formally recognized as a reservation under the Indian Organization Act of 1934. A constitution and bylaws were adopted at that time.

The Hannahville Indian Community Today

Hannahville, the home of the Nah Tah Wahsh Public School Academy, is located approximately 90 miles from Green Bay, Wisconsin, and 60 miles from Marquette, Michigan. The nearest commercial center is Escanaba, Michigan. Escanaba is about 10 miles from Hannahville and is situated along the northern shore of Lake Michigan in the southwestern corner of the Upper Peninsula of Michigan. Escanaba has a population of around 14,000 in an area that is best known for hunting, fishing, and other forms of outdoor recreation. A recent movie, *Escanaba in da Moonlight*, is a comedy that relies heavily on the reputation of the town as the hunting center of the Upper Peninsula for much of its humor.

With a population of around 14,000, Escanaba is the commercial center for the region. It boasts a variety of businesses representing retail and service industries that serve year-round residents as well as the vacationers, hunters, and other seasonal visitors. A measuring device, 3 or 4 feet tall, is attached to each fire hydrant in order to warn vehicles of the hydrant location during snow season. Up to 200 inches of snowfall is not unusual for the season. The residents express pride in their ability to handle the elements and whatever the weather brings. Summers are generally mild, and the fall is a spectacular array of colors across the woods that characterize the area. Wild game, including deer and black bear, is available for hunting, photography, or simply viewing. Fishing in the inland lakes and streams as well as Lake Michigan provides both food and recreation for sport and commercial fishermen. The logging industry is significant, and trucks heavily loaded with logs headed for the sawmills are frequently seen on the highways.

The Hannahville reservation is open, and there is a mixed ownership of lands that are primarily used for timber, some farming, and recreation. The prime revenue source is a casino. It is very successful and attracts patrons from as far away as Detroit and Chicago. Reportedly, the casino is producing profits of around one million dollars a month. Midweek and during the day, the gaming devices are not fully utilized; but it was reported that the weekends are very busy. The

casino and its associated hotel, restaurant, and meeting facilities serve those who wish to gamble and provide very nice accommodations for others in an otherwise rural and remote area.

The Potawatomi Tribe is the primary owner and operator of the casino complex. The primary focus of the Tribal Council appears to be providing low cost housing (rent based on the ability of a family to pay) and an infrastructure of social services for its members. However, a modest annual per capita payment of \$2,000 is paid to each eligible adult tribal member, and \$1,000 per year is placed in a trust fund that is fully accessible only upon graduation from high school for each person under 18 years of age.

A number of housing developments that will add to a higher quality of affordable housing for residents are under way on lands owned by the tribe. Currently, much of the housing consists of small houses, likely built as government project homes, and single and double-wide mobile or manufactured homes. The older housing is showing signs of deterioration due to lack of quality materials or workmanship and/or poor maintenance. With the new resources available to the tribe, previously sold Indian lands are being purchased by the Tribe as an investment for immediate and future needs. New powwow grounds that will provide space and accommodations for thousands of persons are being constructed. A large event that will draw thousands from across the country is scheduled for Summer 2003.

Nah Tah Wahsh Public School Academy

About ten miles east of Escanaba, just past the casino and within the bounds of the Potawatomi Indian Reservation, are two public schools: the Bark River-Harris School and the Nah Tah Wahsh Public School Academy. Both schools serve K-12 students and are located within two miles of each other. The Bark River-Harris School is the traditional school, and Nah Tah Wahsh is a state-authorized public school academy, better known as a publicly supported charter school. Nah Tah Wahsh is also known and operates as the Hannahville Indian School, a Bureau of Indian Affairs (BIA) contract school. The Potawatomi Tribe of this area has a contract with the BIA to operate a school for Indian children; and under Michigan law and with the authorization of Northern Michigan University, there is an operating charter school or public school academy (PSA), as they are known in Michigan--same school, same governing board, same administration, but differential program support. Hannahville Indian School was begun in 1976, and the charter school became operational in 1995. The main building for the school was completed in 1992.

Prior to the establishment of the Hannahville Indian School, all of the children who attended public schools were enrolled in what is now the Bark River-Harris School District. The Hannahville Indian School was originally established with a mixed lot of facilities. The school today, however, is a very modern, attractive, and functional school that serves fewer than 160 students. It also houses a day care center that serves more than 100 small children. Because the charter school is not at its maximum authorized limit and the nearby public school is obligated to take children of district residents, students may transfer at will. The school facilities are well maintained, and there is obvious pride in the facility and what it represents to the community. The superintendent, Tom Moore, has held his administrative position for more than 20 years, and Rich Sgarlotti, the curriculum coordinator, has more than 17 years at the school.

The classrooms are traditionally arranged and well stocked with instructional materials and decorations. The school has an ITV room, reportedly not used for at least 2 years, and 4 technology personnel to keep things running and to provide instructional assistance as needed. Little use of technology for bringing in outside coursework for science or math was observed.

The PSA (Nah Tah Wahsh) focuses on the core academic subjects for K-12 students, and the BIA contract school (Hannahville Indian School) focuses on vocational areas and extends below kindergarten and as an alternative to regular high school programs. Family planning, infant day care, and other family counseling services are also available through the BIA school.

The BIA tribal contract component of the school includes title programs, certain vocational programs, and special education. It would appear that these are federally mandated programs available for eligible students. It is reported that there are two school boards, but they are comprised of the same people. Separate meetings are conducted, and separate fiscal accounting occurs.

The Tribal Council puts about \$500,000 per year into the school. With the BIA contract and the state's allocation of around \$6,500 per student enrolled in the PSA, this is not a poor school. In the areas of language and culture, sports, and vocational trades, the school primarily uses the Tribal Council monies. The school is particularly proud of its building trades program, which has done construction work at the school as well as an annual home building project. An observation of the home currently under student construction evidenced a quality of construction at least equal to a number of new homes being built by private contractors.

Although there are no Native American teachers on the staff, there is evidence of an emphasis being placed on the Potawatomi culture within the school's curriculum. As mentioned previously, students are engaged in designing and building a house. Other students are engaged in mass producing wood duck nesting boxes. Elementary students are involved in sugaring, collecting, processing, and bottling maple syrup. The "academics," math and science, are integrated into all of the above activities. A major effort is being made to make the curriculum culturally based. "Creating Sacred Places" is a theme that runs through the math and science curriculum. The math classroom contains a full wall mural made up of brightly colored one-inch square tiles depicting a large array of math problems. In addition, outside experts in the integration of Indian culture, Oscar Kawagley and Gregory Cajete (integrating native science into the classroom workshops) have been brought to Nah Tah Wahsh to work with the staff.

Special Programs

Gifted and talented. The Gifted and Talented (GT) program provides services for children in grades K-12 who have been identified in different areas including academic aptitude, visual/performing arts, intelligence, leadership, critical thinking, and creativity. They have been identified through teacher/parent referrals, standardized testing, artistic ability, and other screenings.

The main goal of the program is to provide new and challenging learning experiences that are not always included in the typical classroom. Instruction for the students may occur in the regular classroom, in the GT program's classroom, or through independent studies. Students are given the opportunity to excel in the different areas through individual interests and teacher guidance. Parents are always welcome and are encouraged to assist in developing a portfolio of the child's work and achievements.

The GT program allows students to work at an individual pace to achieve their goals. The program is organized so the students are encouraged to assist in planning their activities. The students work on their goals during scheduled times and in classrooms when time is available.

During the past year, GT activities have included graphing, computer games, estimating activities, personal writing, surveys, quiz bowl, technology, and the Native American Science Bowl.

Building trades. In the Building Trades program, students learn skills that will follow them throughout their personal and professional lives. At the same time, they provide valuable services to the school and community.

A recent project was to begin constructing a 12' by 20' storage building. This included everything from designing the structure to building trusses and pouring concrete. Math was used to determine how much concrete was needed for the floor and basic measurements of shelves and doors.

The program reaches students in grades 4-12, teaching everything from basic math to blueprints to technology and career awareness.

Title I. The Nah Tah Wahsh Title I program is schoolwide, which means all students are eligible for services. Title I staff provide assistance as needed at all levels to ensure that students meet high academic standards, with emphasis on the core subjects (math, language arts, science, and social studies).

A part-time coordinator, one teacher, and two assistants are funded through Title I. The main focus of services is at the early elementary level, with one assistant providing services in the high school.

Yat Soke Wajek. Yat Soke Wajek refers to the summer literacy program. The program is one month in length and is conducted from 8:45 a.m. until noon. Students are offered opportunities to strengthen their reading and writing skills through reading games, phonics activities, drama, singing, and computer work.

Sweet spring lessons. This project is a very innovative and integrative activity. Nah Tah Wahsh students tap maple trees in the spring. The overall goal is to bring Native American culture together with science. In the project, students not only learn the art of making maple sugar and syrup, they also explore methods of collecting sap and use computerized sensors to study how humidity, temperature, and barometric pressure affect sugar content.

Almost all students in grades 4-12 are involved in the production. The shop classes build the sugar shack, English students design labels for syrup bottles, and grade school children map and number maple trees for tapping.

Family and Child Education. FACE is a family literacy program that was started in 1992. An average of 65 families enroll in FACE every year, either in home base, center base, or both.

In the home base, parents with children ages birth to 3 receive biweekly home visits to learn the latest brain research on child development, read to their child, and do an activity with their child.

Center-based services are available to children ages 3-5 with a parent or other adult. The child and adult attend school together. They eat breakfast and lunch together, then children work on school readiness skills in the preschool room while adults work on GED completion and/or classes toward their high school diploma. Adults who already have a diploma work on other

goals, such as resume writing, computer literacy, college classes, etc. The adult also spends an hour with the child in the preschool room.

All families have the opportunity to attend a monthly group meeting to do activities with other families. Group meeting topics have included pumpkin carving and Halloween safety, making Christmas decorations and discussing holiday stress, nutrition and budgeting, and brain research.

The FACE staff includes a part-time coordinator, a parent educator/preschool co-teacher, a preschool teacher, an adult education teacher, and two parent educators.

Community play day. Community Play Day is an opportunity for children, families, community members, and friends to share in fun activities. At a recent Play Day, more than 300 people attended and engaged in activities that included bingo, dunk tank, relay races, and basketball. Lunch is also provided. This is an annual event that has occurred over the last 8 years and serves to reinforce the school as a center for community activities.

Career prep. The four primary focus areas of this program are Academic Preparation, Career Pathways, Comprehensive Guidance, and Career/Employability Skills.

Teachers working in the academic preparation area produced a K-2 video program relating to jobs and created a job-shadowing program for students in grades 6-12. Individuals in career pathways created manuals, folders, and booklets relevant to the program. The comprehensive guidance team completed a survey aimed at needs assessment, and the career and employability team developed a plan to integrate and implement activities throughout the system.

Special education. A full continuum of special programs and services are provided for the special instructional needs of students who are learning disabled, emotionally impaired, physically impaired, mentally impaired, and speech/language impaired. Related services such as occupational therapy, career-technical programs, psychiatric personnel consultants, and severely mentally impaired/trainable mentally impaired program assistance are available as needed through the Delta-Schoolcraft Intermediate School District.

Below are listed the types and numbers (unduplicated) of students served:

Specific Learning Disabled	34	
Speech/Language Impaired	21	
Mentally Impaired	4	
Physically/Other Health Impaired	2	
Emotionally Impaired		<u>2</u>
Total	63	

Two elementary special education teachers/classrooms serve grades K-5. Two aides are currently assigned to assist in meeting student needs for those classrooms. Two additional aides are currently assigned to assist in providing services for physically and other health impaired students and a mentally impaired student.

Two middle/secondary special education teachers/classrooms serve grades 6-12. Two aides are currently assigned to assist in meeting student needs in those classrooms. The secondary program has been divided into language arts/mathematics and science/social studies content areas to provide and facilitate curriculum and transition needs of students' Individualized Educational Plans.

One additional K-12 special education teacher and one aide are assigned to regular education classrooms and teaching staff to assist in maximizing inclusion of disabled students in the general education program and the general curriculum.

A certified speech and language pathologist is contracted to provide daily services relative to the needs of disabled students.

The Michigan Rural Systemic Initiative Project

The Michigan Rural Systemic Initiative (MiRSI) is a consortium of 16 school districts and 1 Native American academy and is designed to improve science, mathematics, and technical education. Ten of these districts are geographically arranged from the Saginaw Bay area and points north on the Lower Peninsula of Michigan. The remaining 6 sites are located throughout the Upper Peninsula. The principal investigator and director of the collaborative's RSI project is Dr. Stanley Delidow. There are 5 regional coordinators for MiRSI. The regional coordinators are charged with developing relationships with school administrators and personnel and school board and community members. They also act as facilitators of and conduits for interpersonal networking and information sharing within the school districts. Additionally, they act to connect the districts with their broader communities and, ultimately, with the larger sphere of educational expectations.

The MiRSI project has broad project goals:

1. The improvement of science, mathematics, and technology education in rural, economically disadvantaged regions of Michigan, including using interactive technologies for instructional delivery and teacher training
2. The implementation of valid and sustained systemic change within chosen districts
3. The preparation of a technologically competent workforce that supports economic development within a community or region by strengthening the science, mathematics, and technology capacities within schools.
4. The enhancement of scientific literacy and appreciation
5. The development of community infrastructure to provide resources to sustain educational improvements

The MiRSI regional coordinator for the Nah Tah Wahsh Public School Academy is Michele Wellman. Members of the evaluation team who participated in site visits included Dr. Jerry Horn, Dr. Brian Lotven, and Mr. Paul Nachtigal. After an initial orientation visit by Drs. Horn and Lotven on September 11, 2001, the first full site visit occurred on February 20-22, 2002. The subsequent site visit was October 20-22, 2002. Additional contacts were made via telephone and e-mail.

One indication of the degree of importance that MiRSI places on the Nah Ta Wahsh PSA is the fact that during both of the site visits, the regional facilitator drove from Sault Ste. Marie (400 miles round trip) to be involved in the visit. Administrators at the school were quite positive regarding MiRSI and the quality and degree of contact involved. Some evidence of MiRSI involvement with the Nah Tah Wahsh PSA includes MiRSI supported activities:

Needs assessment survey

- Teacher in-service - Native Education
- Teacher in-service - Elementary Science
- Teacher in-service - Middle School Science
- Teacher in-service - High School Science

- Teacher in-service - Native Curriculum (5 day workshop)
- Leadership institute
- Minigrants to teachers (\$200 per teacher for science/math)
- Teacher in-service - aligning curriculum
- Potawatomi language translation of science standards
- Leadership institute
- Teacher workshop - Native Curriculum Inclusion (summer workshop)
- Teacher workshop - Native Science (Gregory Cajete - nationally recognized expert in the field)

In keeping with the national trend, Michigan has developed state standards with which local standards must be aligned. How well students perform with regard to the standards is assessed by the statewide Michigan Educational Assessment Program (MEAP). The administrators of the Nah Tah Wahsh PSA, while fully aware of the MEAP and the national trend toward high stakes testing, refuse to let the PSA be a test-driven school. The philosophy is more one of “MiRSI will help us do the ‘right things’ more effectively—which will ultimately help test results.”

Statewide Michigan Educational Assessment Program (MEAP) scores are as follows:

	Grade	2000	2001	2002
Math	4	74.8% Satisfactory	72.3% Satisfactory	64.5% Passing Levels 1 + 2
	8	NA	NA	53.8% Passing Levels 1 + 2
Science	5	43.6% Proficient	41.6% Proficient	73.2% Passing Levels 1 + 2
	8	24.2% Proficient	19.7% Proficient	66.6% Passing Levels 1 + 2

Michigan Educational Assessment Program (MEAP) scores for the Nah Tah Wahsh Public School Academy are as follows:

2000: Grade 4

	Math	Reading
Satisfactory	*	*
Moderate	*	*
Low	*	*
Number Included	8	8
Number Tested	N/A	N/A

Note: * = Fewer than 10 students included
N/A = No Data Available

2001: Grade 4

	Math	Reading
Satisfactory	66.7%	60.0%
Moderate	13.3%	20.0%
Low	20.0%	20.0%
Number Included	15	15
Number Tested	16	16

2002: Grade 4

	Math	Reading
Satisfactory	Not Applicable	40.9%
Moderate	Not Applicable	18.2%
Low	Not Applicable	40.9%
Level 1: Exceeded MI Standards	0%	Not Applicable
Level 2: Met MI Standards	36.4%	Not Applicable
Level 3: At Basic Level	40.9%	Not Applicable
Level 4: Apprentice	22.7%	Not Applicable
Number Included	22	22
Number Tested	22	22

2000: Grade 7

	Math	Reading
Satisfactory	N/A	N/A
Moderate	N/A	N/A
Low	N/A	N/A
Number Included	N/A	2
Number Tested	N/A	N/A

Note: N/A = No Data Available

2001: Grade 7

	Writing	Reading
Satisfactory	N/A	N/A
Moderate	N/A	N/A
Low	N/A	N/A
Number Included	4	4
Number Tested	8	9

Note: N/A = No Data Available

2002: Grade 7

	Writing	Reading
Satisfactory	Not Applicable	*
Moderate	Not Applicable	*
Low	Not Applicable	*
Proficient	*	Not Applicable
Not Yet Proficient	*	Not Applicable
Number Included	9	7
Number Tested	9	9

Note * = Fewer than 10 students included

2000: Grade 5

	Science	Social Studies	Writing
Proficient	27.3%	Not Applicable	54.5%
Novice	63.6%	Not Applicable	Not Applicable
Not Yet Novice	9.1%	Not Applicable	45.5%
Level 1: Exceeded MI Standards	Not Applicable	N/A	Not Applicable
Level 2: Met MI Standards	Not Applicable	N/A	Not Applicable
Level 3: At Basic Level	Not Applicable	N/A	Not Applicable
Level 4: Apprentice	Not Applicable	N/A	Not Applicable
Number Included	11	9	11
Number Tested	14	14	14

Note: N/A = No Data Available

2001: Grade 5

	Science	Social Studies	Writing
Proficient	N/A	Not Applicable	N/A
Novice	N/A	Not Applicable	Not Applicable
Not Yet Novice	N/A	Not Applicable	N/A
Level 1: Exceeded MI Standards	Not Applicable	N/A	Not Applicable
Level 2: Met MI Standards	Not Applicable	NA	Not Applicable
Level 3: At Basic Level	Not Applicable	N/A	Not Applicable
Level 4: Apprentice	Not Applicable	N/A	Not Applicable
Number Included	8	8	8
Number Tested	9	9	9

Note: N/A = No Data Available

2002: Grade 5

	Science	Social Studies	Writing
Proficient	Not Applicable	Not Applicable	33.3%
Not Yet Proficient	Not Applicable	Not Applicable	66.7%
Level 1: Exceeded MI Standards	0%	0%	Not Applicable
Level 2: Met MI Standards	66.7%	0%	Not Applicable
Level 3: At Basic Level	26.7%	20.0%	Not Applicable
Level 4: Apprentice	6.7%	80.0%	Not Applicable
Number Included	15	15	15
Number Tested	15	15	15

2000: Grade 8

	Science	Social Studies	Writing
Proficient	N/A	Not Applicable	N/A
Novice	N/A	Not Applicable	Not Applicable
Not Yet Novice	N/A	Not Applicable	N/A
Level 1: Exceeded MI Standards	Not Applicable	N/A	Not Applicable
Level 2: Met MI Standards	Not Applicable	N/A	Not Applicable
Level 3: At Basic Level	Not Applicable	NA N/A	Not Applicable
Level 4: Apprentice	Not Applicable	N/A	Not Applicable
Number Included	4	4	5
Number Tested	4	4	5

Note: N/A = No Data Available

2001: Grade 8

	Science	Social Studies	Writing
Proficient	N/A	Not Applicable	N/A
Novice	N/A	Not Applicable	Not Applicable
Not Yet Novice	N/A	Not Applicable	N/A
Level 1: Exceeded MI Standards	Not Applicable	N/A	Not Applicable
Level 2: Met MI Standards	Not Applicable	N/A	Not Applicable
Level 3: At Basic Level	Not Applicable	N/A	Not Applicable
Level 4: Apprentice	Not Applicable	N/A	Not Applicable
Number Included	7	6	7
Number Tested	7	6	7

Note: N/A = No Data Available

2002: Grade 8

	Science	Social Studies	Math
Level 1: Exceeded MI Standards	No Data Available	*	No Data Available
Level 2: Met MI Standards	No Data Available	*	No Data Available
Level 3: At Basic Level	No Data Available	*	No Data Available
Level 4: Apprentice	No Data Available	*	No Data Available
Number Included	9	9	9
Number Tested	9	9	9

Note * = Fewer than 10 students included
 N/A = No Data Available

Class of 2001

	Math	Reading	Science	Social Studies	Writing
Level 1: Endorsed Exceeded MI Standards	0	0	0	0	0
Level 2: Endorsed Met MI Standards	1	1	1	0	1
Level 3: Endorsed At Basic Level	2	2	2	1	1
Level 4: Not Endorsed	0	0	0	2	1
Not Tested	0	0	0	0	0
Parent Exempt	0	0	0	0	0

Note: High school scores are number of students, not percentages

Class of 2002

	Math	Reading	Science	Social Studies	Writing
Level 1: Endorsed Exceeded MI Standards	0	0	0	0	0
Level 2: Endorsed Met MI Standards	1	1	0	0	1
Level 3: Endorsed at Basic Level	1	1	2	1	1
Level 4: Not Endorsed	5	4	4	5	3
Not Tested	1	1	1	1	1
Parent Exempt	0	0	0	0	0

Note: High school scores are number of students, not percentages

Due to the low numbers involved, it is virtually impossible to make interpretations or draw conclusions. In the few instances where measurable, although quite low, numbers exist, there are no real discernable trends. As previously cited, the MiRSI has sponsored a number of activities, in-services, and workshops designed to align the curriculum while increasing relevancy to students by linking it to Native American culture. These efforts might, if the number of students tested is sufficient to yield measurable results, result in positive results.

Progress and/or Presence of the Drivers of Educational Systemic Reform

Evidence of the presence or progress toward fulfilling the intent of the Six Drivers for Educational System Reform, as disseminated by the National Science Foundation, was a major focal point of the site visit team’s work. In the following section, these findings are summarized.

Driver #1: Implementation of a comprehensive, standards-based curricula and/or instructional materials that are aligned with instruction and assessment available to every student served by the system and its partners.

The MiRSI representative made five visits to the school to help with curriculum alignment. The Intermediate School District (ISD) also provides support for math, science, and technology, including professional development support in the areas of curriculum alignment. The State Department of Education provides a CD (MICLIME) to all districts that is geared toward helping district personnel analyze and remediate weakness indicated by MEAP results.

School planners perceive that there is “no demand” for advanced coursework in science or math. Enrollment figures that were supplied certainly indicate a lack of enrollment in such courses. When there is a demand, special arrangements have been made. For example, two students wanted chemistry and it was made available to them. The science teacher is responsible for

teaching all science courses in grades 8-12. One member of the faculty said, “The interest in science and math is really related to practical knowledge—knowledge expected to be required in the practical trades.”

Although the number of students involved diminishes the potential of the (MEAP) program, classroom, Title I, and special education teachers receive the test results. It is reported that there is a rapid dissemination and item analysis.

Driver #2: Development of a coherent, consistent set of policies that supports provision of high-quality mathematics and science education for each student; excellent preparation, continuing education, and support for each mathematics and science teacher (including all elementary teachers); and administrative support for all persons who work to dramatically improve achievement among all students served by the system.

The Nah Tah Wahsh Public School Academy, due to its size, does not possess specific written policies and procedures that might exist in a larger school. Rather, it is a very small community where all faculty and administrators are involved in curriculum alignment. Professional development is provided each week as are mathematics and technology workshops where item analysis for (MEAP) is conducted. A seminar that is funded with MiRSI stipends is provided every summer.

Due to the size of the school, individual demand seems to dictate curriculum. Although the school lacks the numbers to offer higher math and science, ad hoc demand (as in the case of two female students who needed chemistry as a prerequisite for nursing school) is met.

Driver #3: Convergence of the usage of all resources that are designed for or that reasonably could be used to support science and mathematics education—fiscal, intellectual, materials, curricular, and extracurricular—into a focused and unitary program to constantly upgrade, renew, and improve the educational program in mathematics and science for all students.

The Nah Tah Wahsh Public School Academy does not suffer from a lack of adequate funding or equipment. As a result, shifting of funds or convergence of resources is not really an issue. MiRSI is only one of many sources of funding available to the school. Intel microscopes, digital cameras, ITV, computer labs for use by all students from fourth grade and beyond, a five person technology department, and current curriculum materials are all available. The gifted and talented, career prep, and building trades programs all involve mathematics, science and technology in those extracurricular programs.

Driver #4: Broad-based support from parents, policymakers, institutions of higher education, business and industry, foundations, and other segments of the community for the goals and collective value of the program, based on rich presentations of the ideas behind the program, the evidence gathered about its success and its failures, and critical discussions of its efforts.

The Nah Tah Wahsh Public School Academy and the Hannahville Indian Community are inseparable. Given the rural isolation, size, and culture of the community and the array of services offered to the members of the community, a bonding of the school and community exists that far exceeds most communities. The school has a Parent Advisory Committee and a School Improvement Committee. Efforts are currently under way to create a Parent-Teacher Organization.

There are linkages with area higher education institutions. Bay College has funded a position for a Native American counselor. Northern Michigan University has a native studies program. Both Bay College and Northern Michigan University regularly recruit on the Nah Tah Wahsh campus. Michigan Technological University offers a summer program for Native American children and has sponsored a “rockets for schools” program. Ferris State University is offering graduate credit for teachers taking classes being taught on the Nah Tah Wahsh campus by Mr. Sgarlotti (Curriculum Director). MiRSI helped arrange the program with Ferris State. The Bay Mills Indian Community College, with the assistance of MiRSI, is providing credit at no cost for aides working at Nah Tah Wahsh.

Driver #5: Accumulation of a broad and deep array of evidence that the program is enhancing student achievement through a set of indices that might include achievement test scores, higher level courses passed, college admission rates, college majors, Advanced Placement Tests taken, portfolio assessment, and ratings from summer employers, and that demonstrate that students are generally achieving at a higher level in science and mathematics.

The single source of evidence commonly accepted as a determinant of student achievement in Michigan is the Michigan Educational Assessment Program (MEAP). The test scores for the Nah Tah Wahsh Public School Academy offer no evidence of improvement. Although the number of test takers is so small as to make a determination of progress difficult, there is simply no indication of gains.

There are factors that might be related to the lack of gain in test scores. One is that the in-services and workshops that focus on MEAP and curriculum alignment are quite recent and their impact has not had a chance to be seen on the tests. Also, the proximity to the Bark-River School might attract some motivated students who see the larger school and broader curricular offerings as more desirable for a college-bound student. This would certainly affect the scores of both institutions. The proximity to Bark-River might also explain, in part at least, the extremely low college admission rates for Nah Tah Wahsh graduates. Further evidence of the effect of the nearby school is data from the Michigan Department of Education that reports a dropout rate of 18 percent in 1999-2000 with only a 52.5 percent graduation/completion rate for Nah Tah Wahsh. At the Bark-River School the dropout rate was only 2.1 percent with a graduation/completion rate of 91.3 percent. In sum, it appears that the Bark-River School is attracting a large percentage of the more academically motivated students.

Driver #6: Improvement in the achievement of all students, including those historically underserved.

The Nah Tah Wahsh Public School Academy offers an incredibly broad array of programs that would appear to allow all students (and virtually all of the students could be identified as historically underserved) a chance to excel. The school and community setting are very homogeneous. Family-oriented programs, preschool programs, gifted and talented programs, career prep, Title I, and special education programs strive to make the school an inclusive setting for all in the community. There is a perceived need to help all students and a real effort to achieve that goal.

Based on a set of indicators that was developed for each driver and validated by the Resource Advisory Team, the overall rating of each driver in the Nah Tah Wahsh Public School Academy is shown in the following table.

Evidence does not, however, indicate any real gains in the achievement level of the students. Although it appears that great efforts are being made to help students meet their academic and social needs, link the community values to the school, and make good use of the considerable resources that are available, gains in achievement as measured by standardized test (MEAP) scores have not been observed.

Rating of Educational System Reform Drivers

Driver	Rating
1. Implementation of standards-based curriculum	2
2. Policies supportive of quality math and science programs	1
3. Convergence and usage of resources to support math and science programs	2
4. Broad-based support and involvement of parents and others	3
5. Accumulation of broad and deep array of evidence that the program is enhancing student achievement	0
6. Improvement in the achievement of all students, including the historically underserved	0

Rating Scale

0 = Not present/no evidence

1 = Weak evidence/beginning but sporadic

2 = Moderate evidence/developing but visible success

3 = Strong evidence/operationally consistent and widespread

Concluding Statement

The Nah Tah Wahsh Public School Academy serves a clientele that is geographically rural and isolated. The school has been blessed financially and strives to meet the needs of its students. The unique nature of the students and the community served by the school make it difficult to engender a great deal of enthusiasm for traditional achievement in mathematics and science. Certainly, the faculty and administration appear to be making every effort; and the MiRSI program is one of several that seek to stimulate interest through traditional (curriculum alignment, up-to-date materials) and nontraditional (place based learning, linking Native American traditions to science and mathematics) methods.

The reality, however, is that few jobs in the area require advanced education beyond high school or with a particular emphasis on science or math. There are few role models for students and limited opportunities to observe professionals at work in science, math, or engineering professions. Through a variety of special programs, students are given the opportunity to participate in a variety of awareness and career informational programs. However, there is not much evidence that these activities are having a noticeable impact on increasing student interest in math or science or in pursuing higher education. As one administrator put it, “They don’t leave, and the work they find here doesn’t require a lot of education.”

Shortly before the final visit to Nah Tah Wahsh, the MiRSI PI was informed by the NSF program officer that third year funds would be withheld until certain conditions had been met. It was reported to the site visit team that they had made programmatic changes per the request of the program officer, including redirecting monies from a small grants program for teachers to

other areas and adding a thrust for “teacher partners” that was not in the original proposal. Even with these changes, the funds were withheld, which has put the MiRSI in disarray and uncertainty. With only about two months of money left in the current allocation from NSF, the PI/PD notified the schools and staff of the situation. He expressed little confidence that the funding would be forthcoming. This is quite disheartening to the staff and the participating schools, since this is a too-often-repeated experience, i.e., considerable planning and long-term commitments only to have someone at a higher level or the funding source “pull the plug.” Generally, the perception is that MiRSI has no future, even though there was a plan for sustaining the program beyond the expected 5-year support from NSF.

In rural education and especially programs for Native Americans and their schools, there has been a tendency to specify the “one model fits all.” In our observations across six of the RSIs, a singular model that is acceptable to NSF program officers seems to be prevailing. Clearly, we have found similarities among the several rural communities that we have studied, but there are also major differences. Nah Tah Wahsh is a school with considerable resources, likely twice or more than is spent in a typical public school, but there is virtually no interest in advanced science or math and little evidence that major changes in general or specific improvement in math/science will occur. The teachers in this school, particularly the elementary school teachers, are not well prepared to teach science, and the secondary school teachers are not adequately prepared to teach a wide array of advanced science courses. Many of the teachers are place bound, due to family situations. Interestingly, almost all of the teachers are Caucasian, which likely indicates the scarcity of Native American teachers available in this region and even in the country. Maybe the lack of interest in science and math is culturally related or maybe it is due to other reasons. However, the needs in this community and the school are quite different than those in a poor, culturally deprived school of the Deep South or the Appalachian region. Truly, the students who attend Nah Tah Wahsh are geographically and culturally isolated and without the skills or knowledge to advance themselves economically or educationally beyond whatever the community offers.

This study is not intended to prescribe how a project is to be focused or operated, but it is intended to gain an understanding of the issues, problems, and barriers that face these rural schools in their attempts to systematically reform science and math education. In this case we have to conclude that the NSF program officer, the team that accompanied that person on a brief visit to the area, and the leadership (project and school level) personnel are clearly not in accord. As a result, schools and teachers feel abandoned and misled as to expectations and commitments. However, the needs are still there, and there is not a stopgap procedure for dealing with them. This school could have been a model for making an educational change in an area that is enjoying tremendous improvements in the socioeconomic status of its students and parents. Granted, this is not a wealthy suburban area with a wide choice of educational and professional careers available to high school and college graduates. Nonetheless, these children and the schools that made a commitment to this program deserved a better solution than an abrupt withdrawal of support from the National Science Foundation.