Native American Access to Technology Program: Progress Report

A Report to the Bill & Melinda Gates Foundation
December 2001

Prepared by

John E. Sirois
Margaret T. Gordon
Andrew C. Gordon

Public Access to Computing Project
Daniel J. Evans School of Public Affairs
University of Washington

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Executive Summary

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University of Washington
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This progress report on the Native American Access to Technology Program of the Bill & Melinda Gates Foundation examines the Program's activities in the Pueblos of New Mexico in the "Four Corners" area of the U.S. (NM, AZ, UT, CO), but focuses primarily on NAATP program activities throughout the Navajo Nation in New Mexico, Arizona, and Utah, and other tribes in Arizona and Utah. We visited some tribal sites where the NAATP had already installed computers, and others where the tribes were still waiting for the computers to arrive. In many of the 160 sites --- especially the rural ones --- connectivity to the Internet remains a major challenge, and it is therefore not possible at this time to assess the full impact of the NAATP. Once there has been connectivity for a minimum of six months, we expect to return to a sample of sites to make a further assessment of impacts.

In preparation for this report, site visits and interviews with librarians, tribal grant writers, elders and patrons (including teens and children) were conducted at 15 tribal sites in New Mexico, 11 in Arizona, and 4 in Utah. In addition, we interviewed officials at state library offices, librarians in public libraries in towns bordering the reservations, and Gates NAATP staff. We also attended program review and "roll out" meetings at the Foundation where relevant issues were being considered.

Conclusions emerging from our visits and interviews to date include the following:

- The investment of the Gates Foundation in the tribal areas in the Four Corners area of our nation has created new energy and hope, especially for the more remote and poorest tribes.

- There is an exceptionally broad range of languages, cultures and traditions, economic circumstances, and environmental factors represented in the tribes in this area, and given the Program's commitment to seek input from each tribe, staff must be adept at listening and adapting to the concerns and desires of each. The acceptance of the Program in 20 of the 21 tribes in New Mexico and in all 110 Chapter Houses of the Navajo Nation attests to the flexibility of the staff as it has sought to "fit" the Program to the needs and desires of each community.

- The range of "preparedness" for technology within the 160 NAATP sites is considerable, perhaps greater than within the U.S. Library Program, with urban tribes generally (but not always) exhibiting greater preparedness than rural

tribes. Rural tribes typically are very interested, but have little to no infrastructure or experience with technology; urban tribes are more likely to have solid infrastructure bases and well developed technology systems.

- The impacts of NAATP grants, therefore, are expected to vary dramatically, and the achievements will depend considerably on the starting point of each tribe. In general, we expect that Utah tribes will have the most difficulty in taking full advantage of the NAATP because of their generally poor economies and strained relations with state agencies. At the same time, because of where they are starting, the poorest Utah tribes are likely to be the most impacted of all Four Corners groups. The situations of New Mexico Pueblos and Navajo Chapter Houses vary widely, from those in remote areas with little experience and few resources to those with successful casinos generating significant income for sites providing public access to information for their tribes. The results in New Mexico, therefore, are likely to vary accordingly. Since most Arizona tribes enjoy strong economic situations and amiable working relationships with relevant state agencies, we expect the added benefits from NAATP will be least evident there. (We have not yet visited tribal sites in Colorado.)

- Key factors related to preparedness in any given tribal site include: strength of the tribal economy; prior experience and planning for technology; commitment and support of the local Tribal Council; the individual tribe's relationship with state agencies able and willing to assist in solving connectivity issues; and leadership within the tribal community with respect to the incorporation of technology.

- Those tribes with NAATP computers, but without connectivity, are frustrated that they still are not connected to the Internet. In many locales, the expectations have been raised for a long time now. However, at the time of this report, connectivity is being achieved via satellite for some tribes through an agreement between the Foundation, the tribes, and OnSat Network Communications. The company has had significant challenges with scheduling and equipment procurement. Foundation staff now expect satellite dishes to be installed in all sites that do not now have connectivity by late 2001 or early 2002, with full connectivity and training of staff and/or community members to take place almost immediately thereafter. In order to enhance local sustainability, the NAATP Project Coordinator plans to diverge from the original Phase II strategy and allocate more funds for local technical assistance and less for content servers.

- The achievement of connectivity though cutting-edge satellite technologies is an important breakthrough, and enables the most remote tribes to skip, or "leapfrog" over earlier stages of technology development and use.

- As Internet connections are being established, issues about filtering and pornography are becoming more important to some of the tribes.

- The most "natural" fit of the NAATP with tribal aspirations is computer use by young tribal members. All the tribes, even those most skeptical about computers, see them as valuable for improving educational opportunities for their children. The extent to which their potential value for a range of other activities, including language and culture preservation and economic development (e.g., e-commerce) is appreciated, depends substantially on the presence of a "visionary," (who may or may not be a tribal member).

- There is widespread evidence of leveraging by the tribes of their partnership with the Gates Foundation to secure additional funding for other needs, including enhancement of libraries, renovation of buildings, or completely new buildings.

- Young Native males frequently use and help others with the Gates computers. Since young males are often regarded (and regard themselves) as marginalized in contemporary tribal settings, this is an important accomplishment.

- Children's learning software is the most popular, followed by art-related programs, and Office 2000. This is a general finding although there are indications in some locales that the relative importance of different software packages will change as more tribal members gain experience with the technology.

- The success of the Gates Interns for the NAATP in the Four Corners area is spotty, but it is extremely valuable where it is successful.

Recommendations emerging from the site visits and interviews to date that may also be relevant to other rural, poor, and/or isolated sites in the Foundation's U.S. Library Program or the International Library Program include:

- Many elements in the NAATP approach to working in Native American communities are important to the overall success of the program. In particular, the frequent, face-to-face meetings with community representatives to discuss program implementation help to foster trust and build a strong sense of ownership that facilitate development of each local program, and merit special attention in any future program with similar communities.

- Continue to partner and share resources with organizations and companies working on up-to-date technological solutions that "leapfrog" stages of development, as well as those that can support ongoing training and relevant content development (e.g., language and culture preservation).

- Share any relevant information about infrastructure development that could promote tribal economic development more generally.

- Target young men and women in the tribal communities who can be trained as support personnel in these sites – simultaneously providing jobs, service, and role models.

- For the most remote sites, consider ways of providing extra initial support, perhaps through supplemental training.

- Develop a Website for sharing best practices among all tribes.

- Reconsider the competitive nature of the application for the Content Server in Phase II of the Program as the tribes with the most need may not have the resources and expertise to prepare competitive proposals.

- Consider optional grants of laptop computers to facilitate and extend the use of LCD projectors.

- In response to tribal interests, incorporate more educational software for young adults and adults (e.g., adult literacy programs, Math Blasters, SAT Improver).

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II. Background

The Native American Access to Technology Program (NAATP) began in 1999, and is focused on the Native American communities living on federally recognized reservations in the "Four Corners" states – Arizona, New Mexico, Colorado, and Utah[1]. Similar to the U.S. Library Program of the Gates Foundation, NAATP has the express goal in its Phase I "to provide equipment, training, support and funding to increase opportunities for public-access computing and Internet access in Native communities." Then in Phase II, the NAATP plans "to provide equipment, training, support and funding to increase ongoing efforts in cultural preservation, archiving, or technology training in Native communities.[2]"

Phase I has been largely completed[3] for all of New Mexico, and the Navajo Nation. The Gates computers have been installed and the librarians have been trained to use them, but connectivity to the Internet has not yet been achieved at several sites. (See below.) The tribes in Colorado, Utah, and Arizona (AZUTCO) began receiving their Phase I grants, computers, and training in August 2001. Phase II of the NAATP is scheduled to begin February 2002, and will follow the same schedule as Phase I starting with New Mexico tribes, followed by Navajo Nation and then AZUTCO. Once all sites are completed in December of 2002, the NAATP will have reached 160 tribal communities in the four-state area, with the intention of making a significant impact on some of the poorest Native communities in the United States. Already, the signs are clear that NAATP is having considerable success and has brought new energy and dynamism to Southwest Indian Country.

Jessica Dorr, the Project Coordinator of the NAATP, has an $8-million budget to achieve the goals set forth in Phase I and II of the Program. She oversees several Native and non-Native trainers who install the computers and train librarians to use them and to teach others. Dorr has been in the unique position of being able to spend the time necessary to develop and maintain strong trusting relationships within Indian Country and to seek the input from each tribe about its needs and program design. These strong bonds have allowed her to gain informed insights about the needs within Indian Country.

Several key factors enhance the success of the implementation of the NAATP grants in tribal communities. These factors are similar in nature to many of those that

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[1] Gordon, Margaret, Native American Access to Technology Program: A Preliminary Review, February 2001.

[2] Dorr, Jessica, Project Coordinator of the NAATP, Program Implementation Review, Map Room, Gates Foundation, June 14, 2001.

[3] The computers have been installed and training has taken place. However, connectivity to the Internet remains incomplete in many sites; satellite dishes currently are being installed and it is expected that full connectivity will exist by the end of 2002 throughout NAATP sites.

predict success in the US Library Program, but some aspects are unique to Indian Country. The key factors seem to be:

- Strength of the local economy and its ability to leverage local support mechanisms;
- Prior experience with or planning for technology;
- Leadership within the tribal community with respect to the incorporation of technology;
- Commitment and support of the local Tribal Council; and
- Tribal relationships with state agencies able and willing to assist in solving connectivity problems.

The following discussion identifies and describes terms useful for understanding Indian Country. It is followed by preliminary results from our site visits and interviews, and by recommendations for the Native American Access to Technology Program that may prove useful in other isolated, rural and/or poor sites in the Gates Foundation's U. S. Library Program or its International Library Program.

III. **Orienting Terms**

Familiarity with several terms can facilitate the discussion of the NAATP activities by framing the ideas and atmosphere in which the NAATP must operate and conduct training sessions. The following terms clarify the legal, political, and regional characteristics of "Indian Country."

- **Indian Country:** the term commonly used to describe the diverse Native communities and reservations in the U.S. and Canada.

- **Native American:** American Indian, Indian, Indigenous, First Nation are all terms used to describe the *federally recognized* groups the NAATP will work with during the program's life. The Gates Foundation made the decision to work only with *federally recognized* groups; many more Indian groups exist that have not been formally recognized as Indian Tribes. This distinction makes it easier for the Foundation to contract and make agreements with the Indian Tribes. The informal or "un-recognized" Indian groups have no means to enter into contracts with any entity.

- **Pueblo:** An Indian Tribe located primarily in the current states of New Mexico and Arizona. Their organized governmental history predates the many treaties and/or agreements made with the Spanish in the 1500's. The term Pueblo can refer to the village proper, a person's tribal affiliation with a particular Pueblo village, a way of life, and/or reservation lands[4]. Most of these groups retain their languages, cultures, religions, and customs despite Spanish and then American influences. The Pueblo peoples maintain strict regulations regarding visitors to their homelands. These tight-knit communities have strong family bonds and a rigorous sense of their cultural obligations. They do not share their language, culture, or beliefs with outsiders,

[4] Warren, Alvin, Interview at Santa Clara Pueblo Land Claims Office, January 20, 2001.

including with Native Americans from other tribes. Therefore, without specific permission, all of the Tribal Councils prohibit the use tape recorders, video recorders, and cameras. They consider themselves the original inhabitants of the Southwest, and over the years, they have earned adulation for their artwork in pottery, silver smith jewelry, weaving, and contemporary media. New Mexico is home to 19 Pueblos (18 applied for Foundation awards) and 2 Apache Tribes, each with distinct governing entities, ranging in population from 200 to 13,000. Many tribal members may live elsewhere for periods of time, but they tend to return frequently and to retain intense loyalty. Each Pueblo has its unique art styles, dances, and culture. New Mexico has diverse ecosystems, and consequently the Pueblos have different strengths and customs related to their environments. Art galleries in Santa Fe, Taos, and Albuquerque celebrate and capitalize upon the Pueblo artwork and culture. Confusing the Pueblos with Navajo Chapter Houses (see below) offends both groups.

- **Navajo Nation and Chapter Houses:** The Navajo Nation is comprised of 110 Chapter Houses, each a district of the larger governing body. Each Chapter House has an average population of approximately 1,500 to 4,500. The capital of the Navajo Nation is Window Rock, AZ, near the area where the "Four Corners" of Arizona, Utah, New Mexico, and Colorado meet. The Navajo Nation's reservation lands stretch into each of the four states covering an area the size as Pennsylvania. The Navajo call themselves Dine' (pronounced de'nay), and a majority speak their native language. Within the large area of the Navajo Nation, there is diversity in the dialects of the language from one end in NM to the other in AZ. While other tribes in the area consider the Navajo a "newcomer" arriving in the last 700 years, they have established a large and commanding presence in the Southwest and in Indian Country generally. Many of their roads, towns, and community buildings have signage in the Navajo language and it is common to hear the language spoken at home, in markets, on the radio and in everyday life. Because the Navajo Nation is located in a desert environment, many reservation residents "dry farm" and/or raise sheep. Each Chapter House is the site of community gatherings, meetings and events, and the place local residents vote. The Chapter House also serves as the "county seat" for the elected officials and government employees who deliver services to the Navajo people. Recently, a change in Navajo Nation leadership resulted in the endorsement of a local empowerment movement designed to give more autonomy to the local Chapter Houses as they seek to improve their local economies.

- **Diverse Tribal Governments, Languages, and Economies:** There are many other Native tribes in this region, and each has its own governing structure with specific jurisdictions. Examples include Mescalero Apache, Southern San Juan Piaute, Ute

Mountain Utes, Salt-River Maricopa Pima Tribe, Tohono O'dham, and many others. Each tribe has a different language, culture, and code of customs. Just because these groups live in the same "Four Corners" area, does not mean there are "area-wide" general tendencies, or that the tribes respond similarly to technology –or any other issue. Their languages and cultures may be as different as English and Japanese, and there are a large number of them. For example, approximately 155 of the 300 or so languages spoken in the U.S. today are Native American Tribal languages.[5] Many of these indigenous languages face tremendous competition from daily use of the English language in general settings. In response, a significant number of tribes have set up language preservation programs. There also is dramatic diversity in the economic status of tribes. Some have established sophisticated casinos, telecommunications, and manufacturing operations, while other nearby tribes may have little or no economic activity.

- **NAATP "Indian Country Model":** During the initial implementation of the U.S. Library Program in 1999, the Foundation authorized staff to develop a different model to respond to the unique needs in Native communities. Foundation staff used community visits to determine how American Indian communities wanted to employ public-access computers. The resulting Indian Country Model differs from the U.S. Library model in several respects. First, the NAATP model includes additional software, a digital camera, a scanner, headset microphones, an LCD projector (if requested), a laser printer, and a color printer. These additional options responded to the artistic needs in Indian Country. Second, the computers are sometimes located in "community information centers" rather than libraries: the NAATP allows the tribes to decide where the computers ought to be located. Third, to facilitate long-term sustainability, all applications include an official Tribal Resolution from each of the Tribal government attesting to its support for the program. In addition, the Foundation's relationship with the grant recipients follows a different pattern, as the NAATP director frequently returns to Tribal sites to keep lines of communication open and further strengthen the program's ties to Indian Country.

- **Dial Tone Divide:** Analysts of the Digital Divide recognize that it takes many forms for different groups throughout the world. In Indian Country, the Digital Divide includes a dramatic "Dial Tone" Divide. Current studies indicate that on average only 47-55% of households on reservations have telephone service. On the Navajo reservation, only 22% of households have telephone service.[6] These facts present

[5] Endangered Native American Languages: What Is to Be Done, and Why?, © 1994 by James Crawford, http://www.ncbe.gwu.edu/miscpubs/crawford/

[6] Federal Communications Commission Report, "Fact Sheet Promoting Deployment/Subscribership in Underserved Areas, Including Tribal and Insular Areas," Thursday, June 08, 2000.

significant challenges to the NAATP as it seeks to secure Internet connections for places with low phone penetration rates and sparse, out-dated telephony infrastructures. Nonetheless, all NAATP sites should have Internet connections by the end of 2002, a large number of which are expected to be via satellite.

IV. Previous Experiences with Technology Affect Approaches to Public-Access Computing

Overview

There are several common themes that characterize tribal attitudes and approaches to participation in the NAATP.

1) Without exception, tribes express gratitude for the opportunity the NAATP affords, and for the mutually respectful relationships that have developed.
2) Access to technology and the Internet is new to many tribes and often is viewed as essential to developing their economies.
3) At the same time, strong economies are viewed as necessary catalysts to the full incorporation and implementation of digital technology. For example, in those sites where there is a profitable casino, its presence seems to have strengthened technology efforts.
4) Tribal elders accept the introduction of the computers because they believe access to technology will benefit the education of their children and enhance their skills.
5) Tribal elders also have been persuaded that the technology can be used to preserve the language and culture of their communities.
6) In general, the more experience tribes have had with technology, the more likely they are to embrace the NAATP, and quickly develop plans for the incorporation and sustainability of the computers.

Themes from Tribes in Utah

Utah Tribes face connectivity issues, but foresee positive impacts from NAATP grants

Utah tribes are located in remote, often difficult-to-reach locations. These rural settings have left many groups without the ability to develop their telecommunications infrastructures. Outside of Salt Lake City and Ogden, most of the State of Utah is rural and lacks high speed Internet connectivity and with the exception of the Northern Utes, all Utah tribes also face connectivity challenges. Only one Utah tribe takes advantage of programs such as E-Rate and Lifeline, and all the others eagerly await the arrival of the OnSat Network Telecommunications connectivity portion of the NAATP grant so that they finally will have their first telecommunications connections.

Utah State Indian Affairs helps develop more Tribal libraries

Most Utah Tribes do not have libraries in any formal sense. The Utah Division of Indian Affairs manages an Institute of Museum and Library Services (IMLS) Tribal Libraries grant to develop libraries and curriculum within Utah Tribes. Karen Duffy, a consultant, works closely with Forrest Cuch, Director of Utah Indian Affairs, to organize a solid plan for supporting these developing Tribal libraries. Cuch, located within the

Economic Development Department of Utah, believes that the most effective direction for Utah Tribal economic development lies in enhancing the skill levels of tribal members[7]. By assisting in the development of tribal libraries and a curriculum aimed at improving education for Utah Tribes, the Utah Indian Affairs commission hopes to enhance educational attainment and future economic development of tribal governments.

Utah Tribes struggle with socio-economic issues and have had limited access to computers

Most Utah tribes contend with poor economies and low educational achievement levels. One tribe, for example, reported a 10% completion rate for its high school students. Most Utah reservations are relatively barren and devoid of any economic resources. In addition, Utah Tribes often find themselves in conflict with the State Government for a number of reasons. For example, an economic development project proposed by the Skull Valley Goshute Tribe was directly opposed by the State of Utah. The tribe applied to the federal government to house a nuclear waste facility on its reservation, however the reservation shares borders on either side with the largest magnesium mine in North America and a Department of Defense rocket fuel test site and the state objected to the tribe having a nuclear waste facility in close proximity. This is true despite the fact the state already designated the larger encompassing area as a "waste zone." Ironically, now the state has sued the Skull Valley Goshute Tribe to protect state residents from any possible environmental harm.

More subtle conflicts are evident in day-to-day interactions between Tribal members and reservation border-town communities. The Director of Utah Indian Affairs refers to these situations as "smoldering conflicts," which have affected American Indian communities since the pioneer days[8]. All Tribes report conflicts with reservation border towns and poor educational performance in border town schools.

As in the case of New Mexico Tribes, the NAATP computers represent the first and only public-access computers for Utah Indian communities. Although some options exist for public-access computing at local border town public libraries, tribal members say they have never felt comfortable visiting those libraries. The approach preferred by most tribes has been to develop their own libraries and opportunities.

Utah Tribes plan to use computers to improve education and to preserve culture and language

A majority of tribes plans to use the computers to enhance the possibilities for their children's educational achievements. They express a need to have these NAATP computers available to the children and young adults in order for them to complete homework assignments and research projects. The dismal high school completion rates

[7] Cuch, Forrest, Interview at Utah State Economic Development Office, Salt Lake City, July 19, 2001.
[8] Cuch, Forrest, Interview at Utah State Economic Development Office, Salt Lake City, July 19, 2001.

of the tribes only heighten the desires of the tribal elders to get the computers in the hands of the children.

Looking toward the future, all Utah tribes are planning to put their language programs on computers in order to aid in the transmission of those languages to the younger generations. Several tribes also look forward to the NAATP computers as vehicles through which they can educate the outside world about their languages, cultures, and traditions. They feel this new technology will open many doors for their struggling communities.

Utah Tribes have new energy and hope, despite external and internal conflicts

For the most part, Utah Native communities have positive attitudes about incorporating the NAATP computers into their community centers (and library in the Northern Ute Tribe's case). This positive attitude comes from a desire to improve the situation of their communities and thereby improve their tribal governments. Each Tribe recognizes the challenges in its relationship with the State of Utah, and hopes the new technology will facilitate efforts to better educate members not only about local current events, but also about the State of Utah and the larger society. Some tribes have few resources and little space for the computers, but all exhibit tremendous energy and positive attitudes about the possibility that the NAATP computers and Internet connections can improve their current situations.

Themes from Tribes in New Mexico

Thankful Tribes

Every native library staff person, governing official, community member, and elder expressed heartfelt thanks for the Gates Foundation's efforts. Tribal informants cited personal contact as a distinguishing and key ingredient in a successful program implementation. Most of the tribal representatives knew the director by first name, and most library staff we interviewed had spoken with her relatively recently. Tribal representatives made it a point to say, "Tell Seattle," that they appreciate all that the Foundation has done for them.[9]

The impact of NAATP in Indian Country cannot be overstated. The personal connection and the computer equipment, software, and peripherals all have made significant impacts on individuals within the Native communities and on the tribes as a whole. In New Mexico, most of the tribes had already received one computer with a dial-up Internet connection from the state library a year before the NAATP effort. But the quantity and quality of the NAATP hardware, software, peripherals and training was "overwhelming" to them and seemed to make them more clearly aware of the opportunities presented by the Foundation grants.

[9] Yazzie, Pres. Chile, Interview at Shiprock Chapter House, March 21, 2001.

Frustration with Lack of Internet Connectivity for NAATP Machines

Although the majority of the Pueblos have had their Gates computers for over a year, there have been many delays in achieving more than dial-up connectivity and many tribal librarians and computer lab supervisors have become increasingly frustrated. One librarian said, " Tribal members got a taste of technology and what it could do, only to be on the outside looking at what is going on the other side."[10] As of this time, relatively few sites, have high-speed connections.

Recent programs, such as E-Rate and Lifeline, through the Federal Communications Commission, have allowed tribes to access new phone lines, but "POTS" (plain old telephone service) at a 56K transfer rate is simply not considered an acceptable connection, according to the NAATP staff. As a result, the NAATP has worked hard to explore other options such as wireless and satellite connections for Internet service.

After working with a number of vendors, NAATP narrowed down the viable providers to two firms. (Others were interested, but pulled out for various reasons such as too few sites, unwillingness to adjudicate possible disputes in tribal courts, and inability to make alterations to accommodate NAATP machines.) Both providers presented to the Navajo Division of Community Development and Navajo Tribal Council. Based on the presentations, the Navajo Nation decided to contract with OnSat Network Telecommunications. At this point, the second provider declined to offer their product to other southwest tribes and NAATP has worked exclusively with OnSat since then. The NAATP Project Coordinator reflects, "I believe the Navajo Nation supports OnSat…at both the local level and the national level as a result of this shared process."[11] As this report is being written, OnSat Network Telecommunications has begun the installation of satellite dishes in the area and although their work was delayed following the Sept. 11th events in New York City and Washington, D.C. as well as by supply shortages, everyone expects all the dishes to be installed by late 2001 or early 2002.

More Training on Computer Programs and Equipment for All Levels

A majority of tribal librarians and computer lab supervisors felt they lacked adequate experience with the computers and especially with the software. Most of the librarians felt comfortable accessing their e-mail and using the programs themselves, but said they needed additional training in order to train patrons in the computer labs. None of these tribes had budgets to support computer training opportunities for the librarians beyond

[10] Naranjo, Teresa, Santa Clara Pueblo, March 19, 2001

[11] Jessica Dorr, personal communication, December 27, 2001.

what the Foundation provided during the initial computer installation period, or for training library patrons, most of whom had never used computers. The librarians said they felt most comfortable giving help or instruction on the word processing and children's programs. Some of the computer assistants found time to work on the computers themselves, and enjoyed the children's learning programs. They found using the machines and this software to be a "guilty pleasure, and a great way to become comfortable working on the Gates computers."[12] These programs allowed many people to get started and work their way up to harder programs.

"Computers are for the benefit of the children"

For the most part, adults in the Native communities had the attitude that the computers were mainly for the young. In fact, many adults in the Pueblos used the art programs and hardware, but when asked who will benefit the most from the computers, invariably they replied, "the children." Similarly, at the Navajo Chapter Houses, community members and computer supervisors alike said the most positively impacted group by the computers is the children.

Tribes' futures include E-commerce capabilities and Language Preservation

Scheduled for a March 2002 deployment, Phase II of the NAATP will focus on content development and cultural preservation. Some tribes have already begun developing content on the Gates machines, such as the San Juan Pueblo Language Program, and others with more experience with computers, such as the Jemez Pueblo, anxiously await the Content Server portion of the NAATP grant. All Native communities look forward to using the Internet for business development, and some envision web sites that allow tribal artists to display their art and provide new markets for their works. Some communities have considered developing a tribal telecommunication service as a business development.[13]

Importantly, tribal leaders see that the Internet "gives them a voice to educate the outside world about their cultures and beliefs," and to develop further interest in culturally appropriate tourism in their communities. A prime example of content development aimed to educate the internal and external environments of Indian Country comes from the Thoreau Chapter House. With the inspired efforts of Eddie Encino, the Thoreau Chapter House of the Navajo Nation has one of its first-ever websites.[14] The website shown below, demonstrates the content developed through personal will and the aid of the training manuals provided by the NAATP.

They also expect the computers will provide venues for language preservation.

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[12] Eddie Encino of Thoreau Chapter House, March 22, 2001.
[13] Taos Pueblo, Shaun Duran, March 22, 2001.
[14] Thoreau Chapter House Website. Thoreau New Mexico. 2001. Developed by Eddie Encino for Thoreau Chapter House of the Navajo Nation. Retrieved 12/18/01 from http://www.thoreauchapter.org/.

Navajo and Pueblo communities have different views about language preservation. Navajo communities want to use the computer to perpetuate their language and its dialects. While most Pueblos do *not* plan to share their languages or cultures with outsiders, the majority are considering ways to use them to preserve their languages and cultures *within* tribes. This is another example of how the different tribes are succeeding in determining their own visions for the appropriate uses of computers in their communities.

Despite severe challenges in the Navajo Nation, highly successful sites exist.

The Navajo Chapter Houses continue to adjust slowly to the NAATP computers. Navajo Nation represents 110 of the 160 total NAATP locations, and much of the tribe's territory is located in the most remote parts of the Four Corners area. Because of the remoteness, many Navajos have not had prior exposure to computers and did not immediately embrace them. Nonetheless, the majority had heard about the capabilities of computers and what they can provide for children. For that reason, nearly all were receptive on a philosophical level.

In order to introduce Navajo tribal members to the technology so that they could consider participation in the Program, the Project Coodinator for NAATP met with an official from every Chapter House and made a presentation which included a demonstration of the machines. She reports that, "Interest became intense when elders saw and heard the machines speaking Navajo." She had installed the Navajo Language Sentence Machine program. The demonstrations proved so successful that all 110 Chapter Houses decided to participate in the NAATP, a first time –many say—that all

Chapter Houses have agreed on anything! Computer savvy members hope using the Navajo Language program will encourage community members to experiment with other software as well.

The installation of the computers in the Chapter Houses coincides with a Nation-wide change in leadership that is promoting self-determination and empowerment of local governance. For the most part, the new technology has been welcomed warmly as a potential tool for empowerment of individual Chapter Houses.

The Navajo Nation is now officially promoting projects that bring more technology to the Nation and its communities. Through this project and others, considerable interest has been generated in the "Digital Divide" and how it is affecting Native America, and many companies have looked into working with the Navajo Nation, one of the county's largest tribes. Norbert Nez, of the Navajo Nation Division of Community Development, helped to implement both the Gates Foundation Project and other Internet connectivity projects on the Navajo Nation. He works to coordinate these efforts so that they complement one another, rather than impeding progress.[15] As a result of this activity, wireless technology is coming to the Navajo Nation, and several companies are struggling to bring electricity and telephony to all its communities. Currently, less than 20% of the Nation's residents have access to telephones in their homes. Those with telephones rarely have a local ISP, and most who do have to make long distance phone calls in order to connect to the Internet.[16] Navajo Lawyer Warren Denetsosie represents an electrical utility that plans to increase the infrastructure within its service area, but desperately seeks partners to assure a larger impact in remote communities.

Evidence of Leveraging: Many Renovated/New Buildings. Space problems persist.

An interesting development related to the NAATP grants is the occurrence of new buildings and/or renovations in tribal community buildings, often prompted by the need for space for the Gates computers. Many communities have leveraged funds from other organizations or from Tribal Councils to pay for long overdue renovation projects or additions.

The ever-changing space situation sometimes facilitates and sometimes impedes the effective placement of the NAATP computers. By sheer coincidence, for example, the Baca Chapter House replaced its community building, which was destroyed following a gas leak, shortly before the NAATP computers arrived. Other communities have not renovated but have managed to fit the Gates computers in small areas that are at best cozy, but mostly crowded. One struggling New Mexico pueblo has very little funding to accomplish many of the basic goals set forth in the NAATP application. Their library building, which houses the Gates machines, is currently condemned, and the Tribal Council is trying to find another place to house the computers. Meanwhile, the people of the pueblo must seek other public-access computers until the library can re-open in another building. Until that time, the computers will sit dormant next door to the tribal offices.

[15] Interview with Norbert Nez, Navajo Nation Community Development, April 23, 2001.
[16] Interview Mr. Warren Denetsosie, Denetsosie Law Office, June 2, 2001.

Stressed librarians lack financial support and outreach activities

Unfortunately, some tribal librarians report a general lack of support for basic library functions, not to mention additional help to support the NAATP machines. Even before the computers arrived, many tribal librarians felt they needed more staff to handle the needs of the community. While the computers are much appreciated, many librarians --- especially those that have been tribal librarians for 25 years or more--- feel overloaded by new computer-associated demands and feel they do not have the time or the expertise to adequately help patrons.

Thus, while all tribal librarians "love" the computers, many lack the funds to support an additional staff member who could train community members on computers and/or Internet use. Some of these librarians receive minimal support from their tribal councils, and in some cases such as the Jemez Pueblo, no financial support whatsoever. This situation leaves the tribal librarian scrambling to find resources to fund all library activities. Many tribes have grant writers to help the librarians search for any funding that can be used to support staff for the library. In response to this situation, the NM Tribal Libraries have organized their own "Friends of the Library" foundation to help subsidize their operating costs and additional training for library staff.[17]

Due in part due to their situations, few of the librarians or computer supervisors have engaged in outreach activities designed to attracted additional computers users. They relied solely on "word of mouth," or "the moccasin telegraph," to advertise the new computers.

Excellent Libraries are the Exception; NAATP Grants are a Catalyst

The New Mexico State Library classifies the tribal libraries as "certified," "developing" or "potential;" the last category that brings little state support. Truly excellent libraries in Indian Country have been the exception rather than the rule. There are signs that telecommunications and computers will spur commitments and action that will improve the libraries, and move those in the "developing" and "potential" stages to higher levels. Thus, this new opportunity is both a challenge and a catalyst, pushing the communities to come up with plans for technology uses.

Young Native males frequently use and help others with NAATP computers

There are signs the computers may have affected the roles and educational goals of Native young men. At every site, young Native males used the NAATP computers in high numbers. In many sites, they were involved either as computer users or as volunteer helpers in the labs. The presence of young Native males on the public-access computers and in libraries represents a distinct shift for Native communities. Educational reports show the dropout rate for Native children is the highest in the country[18]. Of the Native American college bound or high school graduates, Native females dominate. These public-access computers, firsts for the remote communities, provide an avenue for young

[17] Interviews with Judy Asbury, Jemez Pueblo Community Library, Jemez Pueblo, NM, Sept. 20, 2000, and January 10, 2001.

[18] US Census NA Report, 1998.

Native men to demonstrate their skills and value to communities where opportunities did not seem to exist before the NAATP computers. It is heartening to witness their engagement with the computers.

Art Programs and Office 2000 lag behind Children's learning software in Overall Use

By far, the children's learning software was mentioned as the most used software in the computer labs. The art programs, Office 2000, and e-mail were said to be the next most used programs, with the art programs and Office 2000 Suite gaining steadily in popularity as patrons become more familiar with them. Many Native artists have used the art programs to build portfolios, and many library staff mentioned the Office 2000 programs as being used frequently by older students who come to the library to do research or word processing jobs. E-mail usage occurs only at places where a NM State library computer is present and connected to the Internet; as connectivity improves, use of e-mail is likely to increase rapidly. A few patrons said they use the publishing software and the Gates reference materials to develop their own web sites. All patrons and librarians appreciated the updated software and the speed of the Gates machines.

Tribal Interns: Hit and Miss

The Tribal Internship program in the Four Corners area has faced significant challenges. Those assigned to help at New Mexico sites come from the Tribal Colleges in the area and while some librarians are extremely satisfied, others describe various problems, including that they "have yet to see" an Intern.

Possible explanations for the difficulties include the fact that the average age and experience of the Tribal Interns are closer to those of a 2-year community college student, rather than those of a graduate student, as is the case for the Interns in the U.S. Library Program. Other challenges include the long distances between remote tribes, and the difficult driving conditions, often on dirt roads impassable in inclement weather. The Tribal Interns are required to provide their own transportation, and several have not owned cars that could stand up to the conditions. (Since the "Four Corners" experience, a special category was created in the Foundation's Remedy database for the trainer's list of adjectives for reporting on installation/training visits: "paved or dirt road."[19])

Attrition has claimed almost half of the New MexicoTribal College Interns, and the NAATP continues to grapple with trying to assist those libraries yet to receive needed

[19] Jessica Dorr Interview, Jan 8, 2001, PACP meeting room.

services. The remaining Interns try to pick up the slack for those that have left the program. The more reliable Interns invariably live close by or are members of the particular Native community they serve. The presence of a willing and helpful Tribal Intern dramatically increases the successful incorporation of the Gates computers into a Native community.

Themes from Tribes in Arizona

Arizona Tribes leverage strong economies to support libraries and computer centers

Arizona tribes face different challenges than those in New Mexico or Utah. In part due to legalized gaming operations, many Arizona Tribes enjoy vibrant economies. The presence of financial resources in those tribal communities has allowed them to invest and leverage support for their libraries and school systems. Therefore, many tribal members have had access public computers for several years. In fact, a few tribes actually have full service computer training labs that enjoy T-1, or faster, connections as well as a myriad of software.

However, there are clear differences between urban and rural tribes in Arizona. Urban tribes benefit most from casino operations. The Phoenix and Tucson area tribes experience the highest traffic in their casinos and have the highest profit margins. These tribes have used their profits to diversify their economies, and some have developed telecommunications firms. In addition, the urban tribes have invested their funds in cultural centers, libraries, schools and community centers. The more rural Arizona tribes, however, face resource-scarce conditions similar to those of tribes in Utah and New Mexico. Other rural tribes have sometimes developed casinos but due to the much smaller markets they draw on, have yet to feel any of the benefits associated with legalized gaming.

Arizona tribes envision the promise of the NAATP computers

In general, Arizona tribes perceive the NAATP computers, or their current computer labs, as effective vehicles for improving their educational opportunities, preserving their languages and cultures, and for developing new E-commerce markets. While rural tribes see these computers as a major step forward in exploring the possibilities of this technology for their communities, the urban tribes have been engaged in economic ventures involving technology for some 12 years now. Several tribes plan to computerize their language curricula and cultural histories. In contrast to the New Mexico Pueblos, Arizona tribes want their historical documents and information available to their children *and to non-Indians* so that all people can be more informed about their histories.

Many Tribes have organized libraries and relationships with the State Librarian.

Many Arizona tribes have well-developed libraries and ongoing relationships with the State Library. While most of the tribes did not cite the State Librarian as a key partner in developing their libraries (as in New Mexico), Salt River Pima-Maricopa reported meeting with the State Librarian to establish formal government-to-government relationships in order to share resources and thereby provide better services to patrons.

Strong community support and the presence of a "spark plug" correlate highly with strong computer labs

Tribes with strong Tribal Council support and an energetic visionary ("a sparkplug") have the most thorough development of computer uses. For example, the Pascua Yaqui Tribe has a full service computer lab focusing on educational programs for the children. The director of the lab has tremendous amounts of energy and works hard to find support for her computer lab and to recruit new computer users. She has gained support from the Tribal Council to buy more learning software to support all levels of learning—from child to adult-- in tutorial programs such as "Math Blaster" and "SAT Improver." Some of the tribes have not developed their computer labs, but presented with examples such as the Pasqua Yaqui, they may grasp the steps needed to develop a successful one. Although there is no doubt that casino profits have provided an opportunity for tribal leveraging in some instances, additional (non-Gates) grant sources, leadership, partnerships with Internet technology firms, and Tribal Council support are much better indicators of success in these communities.

More experienced tribes are less impacted by NAATP efforts

Several tribes in Arizona have significant computer and telecommunications experience. In fact, several Tribes report that while they welcome the NAATP efforts, they do not view themselves as benefiting as much as some of the less experienced tribes. The Salt River Pima-Maricopa, Gila River, Fort McDowell, and Pascua Yaqui all had full service computer labs and telecommunications available to all tribal members before the Gates program arrived on their reservations. In these places, the NAATP machines may serve as replacements for older computers the tribes had scheduled for replacement. Several of these tribes also have well-developed Media and Information Services Departments and provide technical services to their tribal programs and membership.

Change in NAATP Policy for Tribal Intern Program in AZUTCO region

The University of Arizona at Tucson will serve as the base for the new group of Tribal Interns who will serve the AZUTCO region. The NAATP worked closely with the University of Arizona Library School and a Native American Studies Department to develop a new model of the Tribal Intern Program. At the Aug. 3, 2001 "Gates Library Program Roll-Out meeting," trainers indicated the new group of Tribal Interns will work

primarily with Arizona tribes. The challenge of getting Tribal Interns to Utah and Colorado Tribes has yet to be addressed. Ironically, the Arizona Tribes have the greatest expertise in telecommunications and the least need for Tribal Interns.

V. Conclusions from Site Visits

The Utah and Arizona Tribes have only recently received their NAATP computers, and because the sites are so diverse, varied outcomes are likely. Most of those sites anticipate "great things" from the introduction of technology into their communities. While most Tribes in Utah and rural Arizona face hurdles in getting Internet connectivity and incorporating new technology, a few urban Phoenix and Tucson area tribes have well-established and sophisticated computer labs.

Despite the variation in resources and experience with computers, there are several key factors the tribal sites have in common that predict successful implementation of the NAATP: strong Tribal Council support, active "visionary" leaders in the community, and community-wide support that fosters computer learning and use. These ingredients meld in different ways in each tribe to form a unique community-wide vision of how new technology can fit into and enhance the community. This region has some outstanding examples of how strong economies allow Tribal organizations to achieve highly developed telecommunications infrastructures. Additional conclusions include:

- The investment of the Gates Foundation in the tribal areas in the Four Corners area of our nation has created new energy and hope, especially for the more remote and poorest tribes.

- There is an exceptionally broad range of languages, cultures and traditions, economic circumstances, and environmental factors represented in the tribes in this area, and given the Program's commitment to seek input from each tribe, staff must be adept at listening and adapting to the concerns and

desires of each. The acceptance of the Program in 20 of the 21 tribes in New Mexico and in all 110 Chapter Houses of the Navajo Nation attests to the flexibility of the staff as it has sought to "fit" the Program to the needs and desires of each community.

- The range of "preparedness" for technology within the 160 NAATP sites is considerable, perhaps greater than within the U.S. Library Program, with urban tribes generally (but not always) exhibiting greater preparedness than rural tribes. Rural tribes typically are very interested, but have little to no infrastructure or experience with technology; urban tribes are more likely to have solid infrastructure bases and well developed technology systems, and, therefore, impacts of the NAATP may appear less pronounced.

- The impacts of NAATP grants, therefore, are expected to vary dramatically, and the achievements will depend considerably on the starting point of each tribe. In general, we expect that Utah tribes will have the most difficulty in taking full advantage of the NAATP because of their generally poor economies and strained relations with state agencies. At the same time, because of where they are starting, the poorest Utah tribes are likely to be the most impacted of all Four Corners groups. The situations of New Mexico Pueblos and Navajo Chapter Houses vary widely, from those in remote areas with little experience and few resources to those with successful casinos generating significant income for sites providing public access to information for their tribes. The results in New Mexico, therefore, are likely to vary accordingly. Since most Arizona tribes enjoy strong economic situations and amiable working relationships with relevant state agencies, we expect the benefits from NAATP will be least evident there. (We have not yet visited tribal sites in Colorado.)

- Key factors related to preparedness in any given tribal site include: strength of the tribal economy; prior experience and planning for technology; commitment and support of the local Tribal Council; the individual tribe's relationship with state agencies able and willing to assist in solving connectivity issues; and leadership within the tribal community with respect to the incorporation of technology.

- Those tribes with NAATP computers, but without connectivity, are frustrated that they still are not connected to the Internet. In many locales, the expectations have been raised for a long time now. However, at the time of this report, connectivity is being achieved via satellite for some tribes through an agreement between the Foundation, the tribes, and OnSat Network Communications. The company has had significant challenges with scheduling and equipment procurement. Foundation staff now expect satellite dishes to be installed in all sites that do not now have connectivity by late 2001 or early 2002, with full connectivity and training of staff and/or community members to take place almost immediately thereafter. In order to enhance local sustainability, the NAATP Project Coordinator plans to diverge

from the original Phase II strategy and allocate more funds for local technical assistance and less for content servers.

- The achievement of connectivity though cutting-edge satellite technologies is an important breakthrough, and enables the most remote tribes to skip, or "leapfrog" over earlier stages of technology development and use.

- As Internet connections are being established, issues about filtering and pornography are becoming more important to some of the tribes.

- The most "natural" fit of the NAATP with tribal aspirations is computer use by young tribal members. All the tribes, even those most skeptical about computers, see them as valuable for improving educational opportunities for their children. The extent to which their potential value for a range of other activities, including language and culture preservation and economic development (e.g., e-commerce) is appreciated, depends substantially on the presence of a "visionary," who may or may not be a tribal member.

- There is widespread evidence of leveraging by the tribes of their partnership with the Gates Foundation to secure additional funding for other needs, including enhancement of libraries, renovation of buildings, or completely new buildings.

- Young Native males frequently use and help others with the Gates computers. Since young males are often regarded (and regard themselves) as marginalized in contemporary tribal settings, this is an important accomplishment.

- Children's learning software is the most popular, followed by art-related programs, and Office 2000. This is a general finding although there are indications in some locales that the relative importance of different software packages will change as more tribal members gain experience with the technology.

- The success of the Gates Interns for the NAATP in the Four Corners area is spotty, but it is extremely valuable where it is successful.

VI. **Recommendations for Future NAATP Activities**

Recommendations emerging from the site visits and interviews to date that may also be relevant to other rural, poor, and/or isolated sites in the Foundation's U.S. Library Program or the International Library Program include:

- Many elements in the NAATP approach to working in Native American communities are important to the overall success of the program. In particular, the frequent, face-to-face meetings with community representatives to discuss program implementation help to foster trust and build a strong sense of

ownership that facilitate development of each local program, and merit special attention in any future program with similar communities.

- Continue to partner and share resources with organizations and companies working on up-to-date technological solutions that "leapfrog" stages of development, as well as those that can support ongoing training and relevant content development (e.g., language and culture preservation).

- Share any relevant information about infrastructure development that could promote tribal economic development more generally.

- Target young men and women in the tribal communities who can be trained as support personnel in these sites – simultaneously providing jobs, service, and role models.

- For the most remote sites, consider ways of providing extra initial support, perhaps through supplemental training.

- Develop a Website for sharing best practices among all tribes.

- Reconsider the competitive nature of the application for the Content Server in Phase II of the Program as the tribes with the most need may not have the resources and expertise to prepare competitive proposals.

- Consider optional grants of laptop computers to facilitate and extend the use of LCD projectors.

- In response to tribal interests, incorporate more educational software for young adults and adults (e.g., adult literacy programs, Math Blasters, SAT Improver).

VII. Future Evaluation Activities for the NAATP: Post Internet Connection Visits, and AZUTCO Installations

While the "Pre-Installation" site visits provided specific information about the AZUTCO region, they raised new questions about how the diverse sites will incorporate the new technology into their communities. The "Post-Installation" site visits will include follow-up interviews with librarians, patrons, elders, and leaders, as well as relevant Foundation staff. The New Mexico Pueblos and Navajo Nation have just begun to receive their Internet connections through the OnSat Network Telecommunications. These eagerly awaited installations may have dramatic effects on computer use, and may have implications for staffing issues for tribal governments. As pioneers in the "Four Corners" region to use OnSat Network Telecommunications for internet connectivity, it is important to document the results of this change in services to New Mexico Tribes and the Navajo Nation.

Additional site visits to the AZUTCO region will provide detailed information on both Phases of the NAATP. These site visits will illuminate a contrast between AZUTCO tribes that utilize the OnSat Network Telecommunications as the primary source of internet connectivity, and tribes with established telecommunications infrastructure. A rich source of data has been collected and will be analyzed in conjunction with Post-Installation interviews from the AZUTCO region.