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**The Pascua Yaqui Connection
Final Report to U.S. Department of Commerce**

Chris Lamar, Project Manager

**December, 2002
TOP Program, Award Number 04-60-98039**

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Project Accomplishments

The Pascua Yaqui Connection was designed to provide technology access to the residents of New Pascua, a village of the Yaqui Tribe of Arizona. This access was accomplished by the establishment of a multi-media computer lab in a central residential neighborhood of the community. The lab was equipped with 20 computers, peripheral equipment such as printers and headphones, and an array of educational and general interest software. The lab was connected to the Internet with a T-1 line.

The lab opened in the Fall of 1999 with publicity to the Tribal community and a dedication including prayers and food. The lab coordinator was a member of the community and instrumental in spreading the word throughout the village that the lab was open and available to residents. The Tribe's organized educational programs such as Head Start and the Edge Charter School for at-risk youth were among the first to use the lab for instruction. Early attendance was a slow trickle.

Additional equipment was added to the lab over the next two years: zip drives, CD-write drives, color printers, computer-assisted microscopes, large mice for children, digital cameras, a larger server. More educational software titles were purchased as school children discovered the lab and mastered the original software provided.

Early on, children found the lab fun for exploring the Internet, sending email to their friends, and listening to music. Parents were assured that children were safe by the presence of a well-known community member, herself a parent, as the lab coordinator. The coordinator established on-line safeguards for children with Net Nanny and her own supervision of such uses as chat and surfing. She also gathered data on numbers of users and types of uses of the lab.

The Tribal Education Director made the lab available for training sessions among other Tribal administrative departments such as Tribal Police and casino managers. A new educational program brought computer-based adult basic education to the Tribe's casino employees, delivered at the casino. Those participants began to use the community lab for additional study and practice.

Project staff made outreach efforts with teachers and principals at public schools adjacent to Tribal land. These efforts resulted in strong relationships among teachers and programs that could be tied to the lab's resources. Training sessions for teachers on web page development software at the community lab

increased teachers' awareness of the lab's potential for their Yaqui students' learning needs. These efforts greatly increased student attendance at the lab.

Project staff procured computer-based GIS learning modules and software for the lab and area schools. Lessons were derived from the modules at age-appropriate levels at the schools. Students were able to practice and explore these science modules at the community lab.

Use of the lab has grown steadily. Additional staff have been hired, and the lab is open more hours, with specific programs and seasonal workshops for groups. For example, parents and children attend a summer program to learn to create digital family histories with audio interviews with elders and photos of their past and current homes and relatives.

The project has met all the expectations of its participants. The Yaqui community's embracing of the facility has exceeded expectations. At this point, the lab has become a comfortable place for community members to find information, prepare resumes, do homework, communicate electronically, and learn. It is within walking distance of most residents. There are tools to foster their creativity and satisfy their curiosity. The lab is owned by and operated by the Tribe. It is their resource and a part of their community.

Partnerships

The original partners on the project were the Pascua Yaqui Tribe, Pima Community College, and the University of Arizona. These three entities worked very closely during the course of the project to accomplish the project goals. The education partners offered stability and continuity to the project, as well as technical and pedagogical expertise.

The Tribe also brought technical and pedagogical expertise, but experienced turnover in the Tribal Education Office. During the four years of project activities, *there was a succession of five individuals who served as Education Director. At times it was difficult to begin anew with recently hired Tribal staff who each began their job with no overlap or continuity with the previous director. Some of the Tribal education leaders were supportive of the project and helped promote use of the community lab; others had different priorities and focus.*

The partners worked to expand the possibilities of learning and outreach that the lab could offer. The outreach efforts resulted in the development of new partnerships:

- Dr. Michelle Hall-Wallace at UA's Geoscience Dept. donated science modules
- UA's CATTs Fellows program donated intern assistance to develop GIS lessons for Lawrence School classrooms and computer lab assignments

- ESRI Corp. donated Arcview software to computer lab and nearby public schools
- Tribal Ethnobotany Project involved Yaqui students in garden and computer lab experiments
- Lawrence School teachers worked with Ethnobotany Project members to develop classroom applications, field trips, and computer lab assignments
- Northwest Learning Center teachers developed computer lab assignments in conjunction with their Bee Pop Project
- Edge Charter School teachers developed computer lab assignments on Tribal land use
- Tucson Pima Arts Council worked with Tribal Education Dept. on summer GIS program with computer lab components

Community Impact

As noted in the evaluation component of this report, the use of the computer lab by members of the New Pascua community has steadily increased in numbers of people served and hours of use. Users' sophistication level has increased as well, with students beginning to use Adobe software for portfolio projects, adults using financial software, and more email accounts in use.

An important indicator is the comfort level of all ages coming to the lab, greeting friends and family members, signing on and using the computers with confidence. All of the Tribe's education programs have reserved times at the lab, even preschool groups. It is wonderful to see four-year-old Yaqui children climb into chairs and reach for the large, brightly colored mice to find their favorite websites and play their favorite games. Like any other group of children exposed to early computer use, they have no fear of the technology.

The Yaqui are an inventive and resourceful group. As their expertise with the computers grows, new uses for the tools are developed. For example, one community member is interested in Yoeme webcasting as a way to preserve Tribal heritage and communicate with other Tribal members in their native language.

Lessons Learned

The education partners were aware of previous technology projects with Native American groups that were considered unsuccessful. They were determined to correct their own preconceived ideas and prejudices and to allow the Yaqui partners to shape the course of the project.

With that in mind, the lab facility was located in a quiet Yaqui neighborhood and staffed by community members. The reporting line of lab staff was to the Tribal

Education Director. These decisions proved very beneficial to the sense of ownership the community developed for the facility.

Each partner had its own portion of the budget, both grant funds and matching commitments. Coordination with the funder was provided by Pima College. While each entity has its own financial departments, accounting and reporting methods differed. Turnover in responsible positions at the Tribe resulted in loss of information, late or missing reports, and the necessity for contingency plans. In hindsight, it would have been helpful to have communicated the complete three-year plan for expenditures and match commitments with many more Tribal departments and employees at the outset. This measure may have resulted in some greater degree of institutional memory and continuity in expenditure and match reporting.

As the project proposal was being constructed, the evaluation plan was devised and written by a University professor with expertise in the area. The project team accepted the direction and evaluation outcomes proposed and included the plan in its proposal. As the evaluation plan was being implemented, it became clear that the plan was unworkable. The outcomes to be measured were too broad, and the instruments provided were not appropriate for the Yaqui population. The Yaqui partners were very clear about the vocabulary and reading level of the instrument being inappropriate and refused to administer the survey. They did not want to intimidate community members and dissuade them from using the lab. While the other education partners agreed with the Yaqui partners' assertions, the professor responsible for evaluation did not make sufficient changes, and data-gathering was halted. Repeated efforts to move the evaluator along failed, and a replacement evaluator was brought in.

This resulted in much less time for data gathering. However, the replacement evaluator quickly established positive relationships with the lab staff and many of the users. By spending long hours at the lab, he was able to gain community members' confidence. He met many times with teachers and administrators, gathering information about how their students were directed to use the lab. He came to know students at the lab and learned from them directly what they did there and how they felt about the facility.

Future Plans

The Tribe's Education Department has secured larger space for the lab in its new education building. The site is just a few blocks from the current lab, next door to the community gymnasium. The lab will continue to be a community resource, surrounded by residential neighborhood. The Tribe's Information Technology Department has assumed responsibility for the lab's maintenance, upgrade, and connectivity with no loss of service whatsoever.

Pima Community College is in the process of digitizing all of its 51 videotape telecourses in order to provide the lab a complete DVD collection of this instructional library. Lab users will be able to complete general education college courses at the facility. They will interact with Pima faculty and other students via web and email, and receive college credit upon completion of courses.

The Pascua Yaqui Connection

Project Evaluations

TOP Program, Award Number 04-60-98039

**PASCUA YAQUI CONNECTION
COMMUNITY RESOURCE LAB EVALUATION**

Evaluator Report 2002

Award Number 04-60-98039

Submitted by J. David Betts, Ph.D.

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Introduction

In 1998, The U.S. Department of Commerce Telecommunications and Information Infrastructure Assistance Program¹ funded the Pascua Yaqui Connection project. This grant initiative was created to address the digital divide. Programs were established to bridge the gap between communities traditionally underserved by connectivity and access to the Internet and advanced computer systems. The Pascua Yaqui Community Resource Lab is the high-speed access computer facility established by this joint effort of the Pascua Yaqui Tribe of Arizona, Pima Community College (PCC) and the University of Arizona (UA).

Pascua Yaqui Tribe of Arizona

More than 12,000 members² of the Pascua Yaqui Tribe of Arizona live in five separate communities around Tucson and Phoenix. The community of New Pascua Pueblo is located 14 miles southwest of Tucson adjacent to the much larger Tohono O'odham Nation. Approximately three thousand Pascua Yaqui tribal members live in New Pascua where the tribal offices are located.

Indigenous Pascua Yaqui people still live in the area in northwestern Mexico around the Rio Yaqui. Their language is called Yoeme. There were 11,000 speakers of Yoeme in Mexico according to a census there in 1990, and there are about that number estimated to live in Arizona now. Settlements in what became the US were a refuge from the Mexican soldiers for a large part of recent history. The tribe received official status as a sovereign nation in 1978. The native language is Yoeme and it is spoken in some homes and in schools. Most Yaqui also speak English and Spanish. The average literacy level is low. A former tribal Director of Education reported it to be at 6th grade for adults. Revenues from gambling at the two casinos, Casino of the Sun and Casino del Sol, has empowered the tribe to take over what were federally-funded programs in many areas.



Pascua Yaqui Pueblo Neighborhood

The Community Resource Lab is housed in a grey portable building approximately 60' X 20' at the Pascua Yaqui Tribe's Education Annex on Camino Cocoim. Adjacent are the Pascua Yaqui Edge Charter High School and the Even Start Preschool Program. There is a ramada and a small garden in the back built by local kids under the direction of a tribal member who teaches at nearby Lawrence Intermediate School. Lawrence serves approximately 475 students, more than 45%



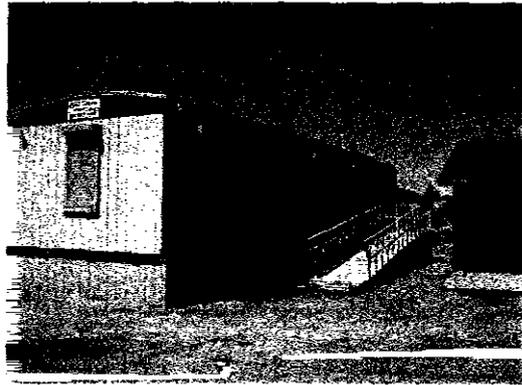
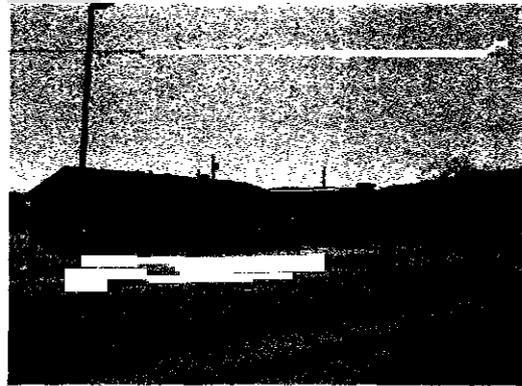
¹ [<http://www.ntia.doc.gov/TOP/granteeresources/handbooks/handbook99.html>]

² Arizona Daily Star. "Arizona is an Indian Word." January 14, 2002. Special Section p.4

are Pascua Yaqui. Houses line up on either side and across and up and down the street in chain link fenced yards. Immediately behind the lot is a community space that has been cleared and used for cultural activities. The yard is bare desert earth, hard, smooth and uneven.

Programs

The lab has become integrated into the community in many ways. In 2001 and 2002, the grant supported the development of programs that would create a context for the lab to expand its use. Several Pascua Yaqui Education Department programs use the lab for learning experiences, personal growth activities and professional development. An alternative charter high school, Pascua Yaqui Edge, is located next door to the lab. Pascua Yaqui Edge is a part of a network of Edge Charter Schools that are designed to accommodate special needs learners. Small classes meet in the lab to use the computers and the Internet. Head start and Even Start programs for preschoolers come in groups of ten on a regular basis to become familiar with the computers and use the educational software. Several tribal offices, including human resources, tribal police and the casino operation, have utilized the lab for staff training and as a program resource. Tribal employees report that the lab is a resource for their job as well as for them personally.



The lab exists in a context that encompasses more than the community. In addition to the local users at the lab, many took advantage of training in the Casino of the Sun for programs in Adult Basic Education and off reservation for Microsoft certification and Geographic Information Systems (GIS) training that was sponsored by the project. Other programs also found the lab to be a valuable resource. Collaborative activities included training programs for teachers at the local school, for example. Other materials developed to take advantage of high-speed connections included the development of a Garden Newsletter and web page written by the students in the Lawrence School Garden Project, which was researched and partially created at the lab.

GIS/Visualization³

Several Pascua Yaqui youth who commuted to the downtown Arts Council for four weeks learned to use a Geographic Positioning System (GPS) device and to take digital panoramas to create a virtual urban environment for planning and beautification. The GIS/Visualization unit was taught at the Tucson Pima Arts

³ (see <http://ag.arizona.edu/agnet/tcten/tpac.html>)

Council as part of their Multimedia Arts Education Summer program. The curriculum emphasized real-world data and the use of digital cameras and GPS devices with lots of hands on experience manipulating the data in such programs as PowerPoint and ArcView. The required GIS software, ArcView, was donated by the ESRI Company in close association with PCC. The lab cooperated in GIS/Visualization workshops for staff and teachers using this module. Local GIS professionals and educators have been part of the program. The GIS Specialist with the Pascua Yaqui Development Department, Tony Fortes, gave a presentation on data his office has gathered at the New Pascua Pueblo. Two Pascua Yaqui boys completed the course. Learning goals for the program were:

1. Technical Skills: Basic GIS understanding, GPS, digital photography/visualization, and presentation skills
2. Concepts: Data collection, real-world decision making with multi-variate objectives, presentation/portfolio, spatial reasoning, and modeling

A consortium of local educational and governmental parties known as TCTEN (Tucson Community Technology Education Network) collaborated to create the curriculum based on the downtown area of Tucson. Members of TCTEN, which includes the principal grant officers for the Pascua Yaqui Connection grant and representatives from city, county and local school districts, organized the four-week pilot program. In order to facilitate the development of a technology community context for the lab, two CATTs (Collaboration to Advance Teaching Technology and Science) Fellows were hired through a program at the UA Department of Geosciences. The CATTs Fellowship program provides advanced science students opportunities to work in the field of education in schools throughout the area. The CATTs Fellowships are a one-year opportunity to support science education at the Community Resource Lab and other sites. A graduate student with experience in computer science and teaching, and a talented undergraduate Fellow ran the course with support from the GIS community. The GIS/Visualization curriculum will be offered again in summer 2002 and will be resource for the Department of Education and Pascua Yaqui youth.

To further lay the groundwork for development of this curriculum at New Pascua, a workshop on GIS visualization was held at Lawrence Intermediate School. A graduate student from UA College of Agriculture taught the course. Seven teachers from Lawrence and the SW Alternative High School attended.

Garden Project⁴

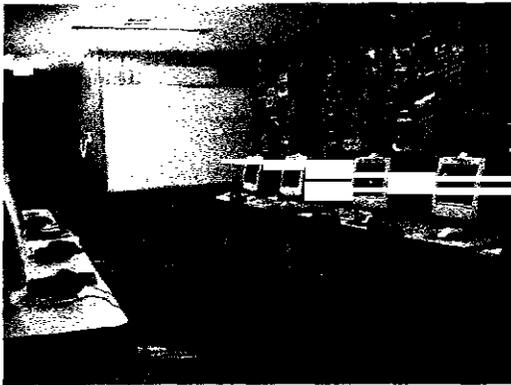
The Lawrence School Garden project was developed by the Tribe and the school to give students hands-on experience while learning about their environment and culture. Teachers received training at the lab in web page design. One was the Ethnobotany collaboration between the tribe, Lawrence intermediate School and the Southwest Center Alternative High School both located within a quarter mile of the lab. The large garden is attached to the Intermediate school. A staff resource person from the Department of Education supervises the garden program. The 3rd, 4th and 5th grades and their teachers take care of the garden and many

⁴ (see <http://www.ed.arizona.edu/gardens>)

learning activities involve the garden and its cycles. The Pascua Yaqui community, which surrounds the schools, has a long tradition of making use of the things that can grow in the desert. As they work in the garden, kids study the desert life cycles around it. They have done research and talked to elders about the plants they were finding and growing. Part of the project was a newsletter, a web page, and a video. The Pascua Yaqui resource lab was the best-equipped lab of the partner schools; the training in web design acquainted some of the teachers from the schools and staff from the tribe's Department of Education with the lab. They quickly saw uses for the tools they found there.

Pascua Yaqui Connection Web Page ⁵

The Pascua Yaqui Connection Web site is the product of the efforts of several parties. PCC, UA and tribal members supported the aggregation of Pascua Yaqui cultural multimedia material and its conversion to an attractive and informative tribal web presence. Materials were reviewed for their appropriateness for the



Web site, and presented to the Tribe's culture committee for approval. Yoeme language author, Felipe Molina was extremely helpful in selecting historical images for the Web site from the Old Pascua photograph collection. The site includes digital video and photographs of Old Pascua village along with the streaming audio of tribal healer Miki Maaso "WAA YO'ORA LUTU'URIA/The Elders' Truth." The Web site mark-up and maintenance is by the UA Office of Distributed Learning. There are photos and video clips

illustrating the tribe's unique history and culture. This process honored the cultural expression of the tribe and the resulting web site is the default screen for the lab Internet browsers.

Facility

The Community Resource Lab was established in 1999 with 20 PC workstations, a T-1 line, and a collection of software for a range of ages and interests. (See Appendix A) The delay of several months was due primarily to the lack of a suitable building and the need to establish a context for such a high-end installation. The plan to have the tribe purchase the hardware was modified to take advantage of the University's buying power and experience purchasing computer equipment. The original lab supervisor said that when she started, "They didn't have phones, so I had to go home to check on the kids – a T-1 line, but no phone." The lab supervisor began Microsoft certification training and a server was added shortly thereafter.

From the TIIAP Community Resource Lab brochure, March 2002:

The Pascua Yaqui Tribe in partnership with Pima Community College and the University of Arizona received a Telecommunication and Information Infrastructure Assistance Program grant from the US Department of Commerce. This grant has provided a state of the art technology-learning center

⁵ (see <http://www.elearn.arizona.edu/pascuayaqui/az/>)

on the Pascua Yaqui Reservation. The Community Resource Lab provides an electronic delivery system for education at many levels. Various educational software programs are available, representing a full range of educational experiences and programs for all levels and ages of learners. It is the goal of the program to create educational support for students and community members. The lab is open for community members, tribal employees, and special interest groups. The lab offers free Internet access to all users that register. This brochure contains a list of all software. (see Appendix A)

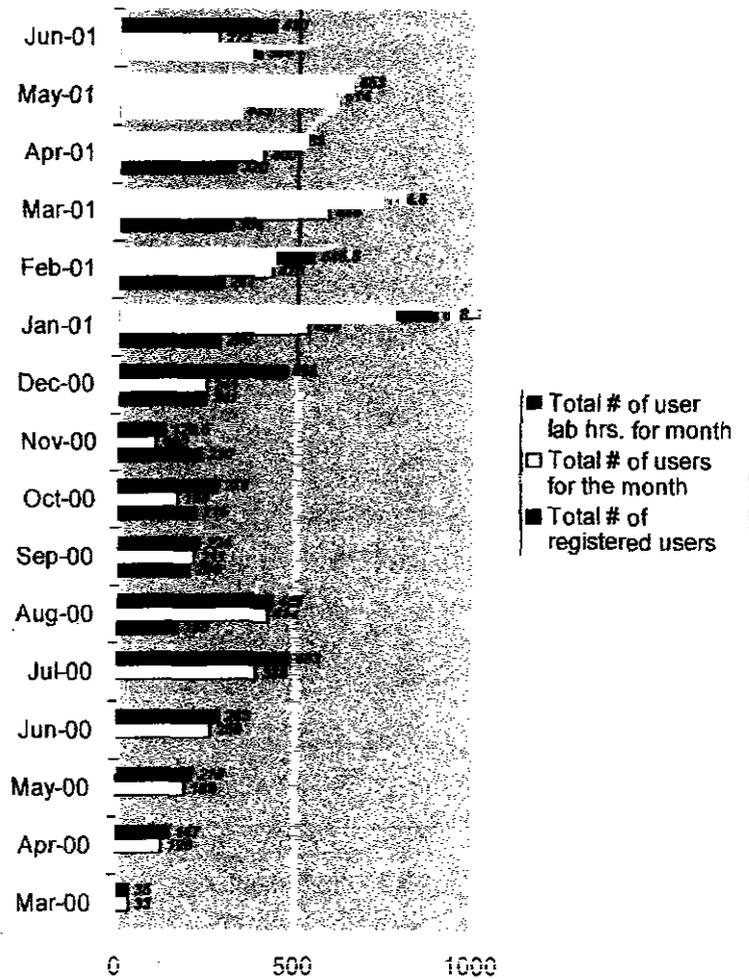
Utilization

There was no precedent for this sort of high tech installation on the reservation outside of the tribal IT and Planning and Development offices. Once the lab opened however, the customer base grew steadily, albeit slowly at first. Although the data collection and its preservation have been at times inconsistent, we can see a steady increase in attendance and use.

Data from the first month of record collection, March of 2000, show 33 users and total of 35 lab/hours. In the summer of 2000, there were 400+ users for July and August, dropping off to just over 200 in September when school began. Notably, the number of under-18 users increased steadily as the total number leveled off for this period in the late summer.

Lab hours were increased, the lab coordinator received Microsoft certification training, hardware was upgraded and software added to respond to the needs of the community. The staff and local teachers received training in a variety of software applications and server use. The community participated in several workshops, and the schools began to utilize the resource regularly. There was support from the grant partners in providing this training and purchasing and installing the hardware and software.

The following chart (Chart #1) shows a general trend of growth over the period from March 2000 to June 2001 based on records kept at the lab.



March '01 - June '02

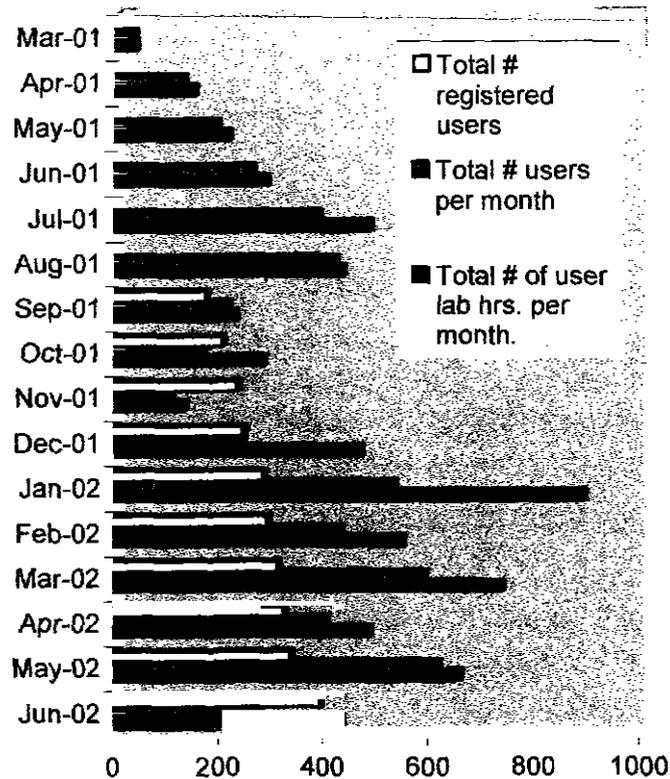


Chart #1 Lab use 3/00 - 6/01

There is a rhythm to life in the Pascua Yaqui Pueblo that may be reflected in this chart. The Easter season and the beginning of school are coincident with a fall-off in use. Note that the celebration of Easter is the major cultural/religious event of the Pascua Yaqui year and involves weeks of activity by large numbers of tribal members. The start of the registration procedure, in August 2000, begins a steady increase for the total number of registered users. Promotion and new programs at the start of 2001 brought a large increase in use; the number of registered users increased steadily throughout this period.

Posted lab hours in March 2002 (Mon - Thurs 1-7 PM, Friday 1-10 PM, Sat - Sun 10-5 PM, 47 hrs/week) reflect the evolution of utilization. Morning hours were regularly scheduled for use by groups of students from the Head Start and Even Start programs, the Edge High School and special training and workshops.

The following charts show the steady development of a user base and give an indication of how the lab fit into the life of the community. In March 2002, for example, the Community Resource lab was open for 185 hours and had 711 users for a total of 1034 lab/hours, or an average of 1.3 hours per visit.

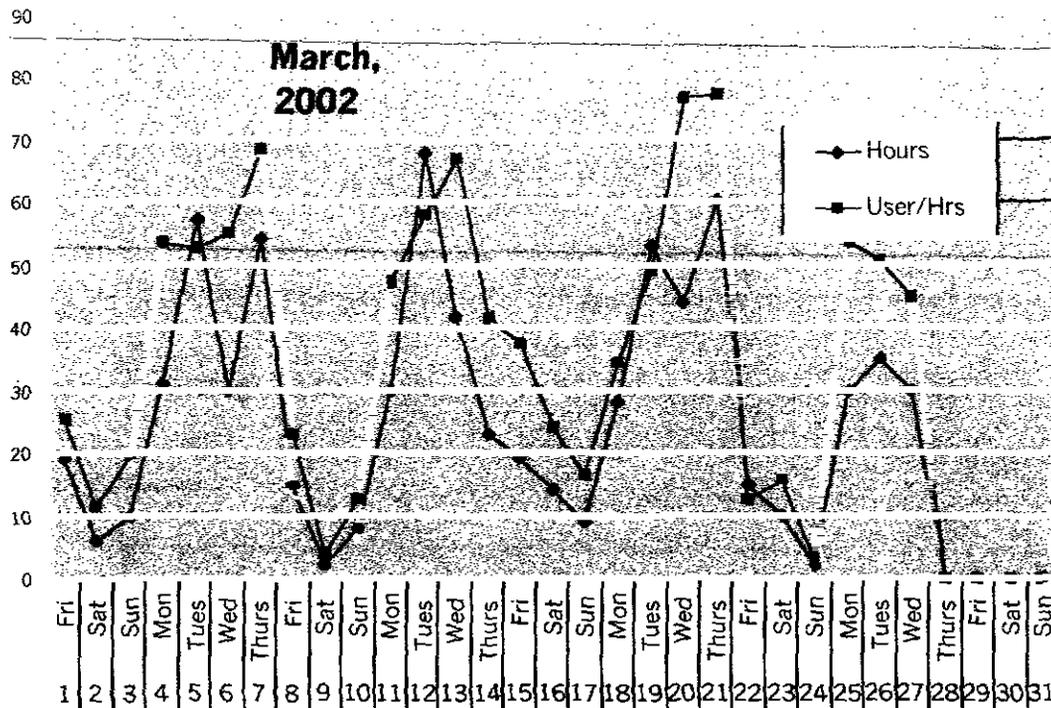


Chart #2. Lab use March 2002

This chart shows the general pattern of increasing use that also corresponds to the cultural setting in New Pascua Pueblo. When a small number of weekend hours were offered there was light and uneven use. The chart above shows high use during mid-week, which corresponds to the growth in after school use. During the Easter Lenten season the lab was closed to accommodate the Tribal cultural activities. This religious celebration is very important to Pascua Yaqui community members. Tribal offices are closed, as are local schools.

Below is a chart (Chart #3) representing the number of users, the number of user/hours and the average time of use per user for the first four months of 2002.

Lab Use January - April 2002 -

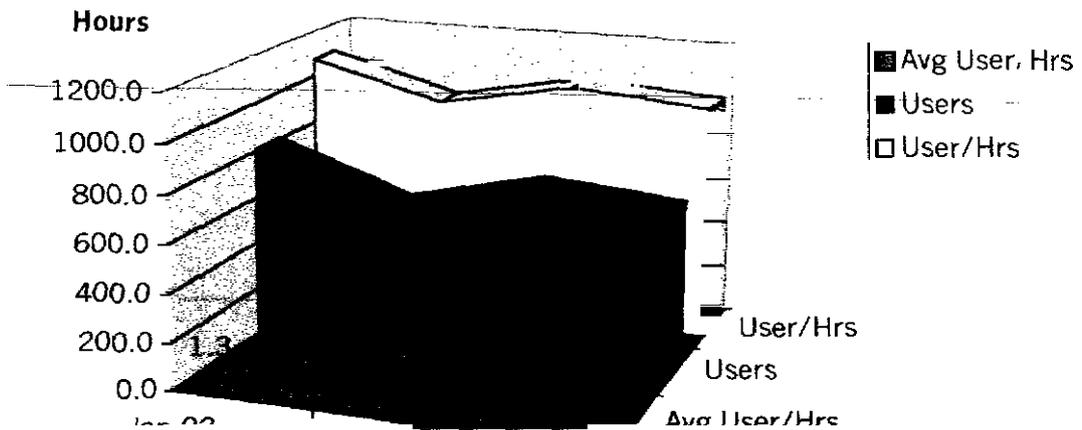


Chart #3, Lab Use: January to March 2002

This chart shows the level of use recorded at the lab during the first quarter of 2002. Average User Hours refers to length of stay, Users are those that signed or were signed in and User/Hours are the total number of hours spent. For this period people were staying an average of 1.4 hours. There were between 600 and 800 visits per month and an average of nearly 1000 total hours spent at the lab each month (Note that February was a short month with holidays and the data for April were taken up to the 22nd of the month.) This the most recent data and illustrates the leveling off of use that has occurred. Lab staff report that the present facility has reached nearly its maximum use. They see lines of people at times, young and old, waiting to sign on to a computer. They see the seventy Even Start youngsters, each coming to the lab every two or three weeks in groups of 10.

Evaluation

This evaluation was conducted in the last year of the project and varies from the evaluation procedure that was proposed initially. The measurement of cognitive changes in lab users, as proposed, proved impossible to achieve in the field. Cultural considerations, not the least of which is the low reading achievement of the population, made the first plan inappropriate and objectionable to tribal members. In addition there were personnel changes in tribal administration, lab staff and project evaluation that affected the original plan. A compromise was reached, and it was possible to administer a pre- post survey on changes in attitudes and perceived self-efficacy on the part of lab users in the last year of the program.

This report is based on the activities related to the lab, the context that was created and the lab's role in the community. It consists of observations, some of which were videotaped, during many visits to the lab and meetings with stakeholders, results of a survey given to a large sample of local users over the last year, and

a multimedia presentation on CD-Rom that is described below. Data was collected about how people were using the lab, and how they were feeling about it. They were asked to talk about their participation and to describe what they were doing.

Goals and Outcomes:

Major goals identified for the Pascua Yaqui Connection project were:

- Improve training and learning opportunities
- Enhance K – 12 educational performance
- Enhance post-secondary educational performance
- Provide Internet access to an under-served population

Stakeholders were hoping for improved high school retention, heightened interest in science careers, on-line student services such as tutoring, and support for the development of Yoeme (Yaqui) language communications.

The anticipated project outcomes:

- Community access to Internet and e-mail among the New Pascua community members
- Increased opportunities for adult basic education
- Greater interest in science studies and science careers among Yaqui at-risk youth participants

Many of these goals and desired outcomes were realized. School age children reported that the lab was very useful; most don't have a computer at home. They were proud of their typing skills, handy with word processing, and comfortable in the high tech environment. Although it is difficult to track high school grades and retention (due to lack of Inter-Governmental Agreements such data cannot be shared between the tribe and the local school district), many high school, college and professional-level students took advantage of the lab to do school work. Young adults said that they used it to do things for their job. Teachers noted their appreciation for the facility as a resource for their students. Teachers in the charter school and neighboring intermediate and alternative schools report that the lab is a valuable resource helping them keep students focused on school. Almost one quarter of the people living in New Pascua Pueblo registered and used the lab. Twenty-seven percent of those surveyed would opt for the lab being open all the time, or 24/7. Importantly, the tribe has shown that it is willing to take over the operation of the lab and continue to integrate it into its many education programs.

Methodology

An integrated study that included both quantitative and qualitative methods was conducted. Likert-scaled questionnaires were administered during registration and from one to six months later. During the last year of the project consistent observation was conducted, including videotaping of lab activities and interviews with stakeholders. The purpose was to capture the atmosphere of the lab and see its many uses. The portable building, the sounds, the comings and goings, the classes and the exploring that took place as part of the lab's regular use were recorded.

Initially an elaborate, multiple-page survey was proposed for the evaluation. This unwieldy instrument met with resistance from the staff and community members at the lab. The stakeholders and the outside evaluator agreed that the instrument should be replaced. A 30-item User Registration Survey that captured demographic and attitudinal data was created and administered as part of the lab's new user registration procedure. During the last year of the project, a streamlined 18-item posttest, based on an item analysis of the results of the pretest instrument (see discussion below), was delivered to the lab in September 2001. All users, new and registered, were asked to complete it. (See Appendix B for a discussion of the factor analysis done by Dr. Gulcan Ercetin.)

Findings

Demographics: In the Pretest sample (N=166), 87 were male and 90 were female. Thirty-seven individuals (22%) reported having a computer at home. Most respondents reported English as their Native Language. The results were: English-84, Spanish-2, Yoeme (Yaqui)-31, English/Spanish-20, English/Yoeme-2, and 2 reported being tri-lingual in English, Spanish, and Yoeme. Fifty-three percent had graduated from high school. And, 83% reported their ethnicity as Native American.

	Pre N=166	Post N=94
male	87	47
female	90	47
computer at home	22%	17%
high school grad	53%	83%
Native Language	English 84 Spanish 2 Yoeme 31 E/S 20 E/Y 2 E/S/Y 2	English 62 Spanish 1 Yoeme 1 E/S 22 E/Y 11 E/S/Y 11
Avg. Age	21 range 2-59	18.1 range 7-56
id N.A.	83%	75%

It was noted that there was non-compliance related to literacy issues, such as skipped items and illegible responses in both samples and that by report the lab staff assisted some in filling out the forms.

The posttest sample, as of February 2002, consisted of 94 lab users (47 male and 47 female), ranging from age 7 to 56. Seventeen percent had a computer in their home. English speakers constituted 65% of the sample, while English/Spanish speakers comprised 24% of the sample. Eighty-three percent had completed high school. Seventy-five percent self-identified as Native-Americans. Twenty-seven percent (27%) wanted the lab to be open 24 hours, 7 days a week (this was a new item on the post survey).

T-Test: A paired (dependent) t-test was performed to compare the means of 18 questions asked during pre- and post-test applications. Mean differences were found among questions 4, 5, 13, 14, 15, 16, 17, 18,

suggesting that the attitudes of the subjects toward computer use, in particular for communication, have positively changed between the time of pre and post test assessments. The items that showed significant change were about electronic communication and the new tools they had for getting and sharing information. Each item consisted of a five-point Likert scale from strongly disagree to strongly agree, 5 being highest agreement.

4. I enjoy using the computer to communicate with my classmates.

Pre 3.32, Post 4.14	post-pre Mean diff.= .83
Std Dev 1.765	p=.000,

5. I enjoy using the computer to communicate with my teachers.

Pre 3.04, Post 4.10	post-pre Mean diff.=.96
Std Dev 1.675	p=.000

13. Using a computer gives me more chances to practice English.

Pre 3.62, Post 4.03	post-pre Mean diff.=.41
Std Dev 1.517	p=.000

14. E-mail helps people learn from each other.

Pre 3.55, Post 4.25	post-pre Mean diff.=.70
Std Dev 1.626	p=.023

15. An advantage of using e-mail is you can contact people any time you want.

Pre 3.85, Post 4.21	post-pre Mean diff.=.35
Std Dev 1.382	p=.000

16. Writing to others by e-mail helps me develop my thoughts and ideas.

Pre 3.39, Post 4.28	post-pre Mean diff.=.89
Std Dev 1.601	p=.023

17. Using e-mail and the Internet makes me feel part of a community.

Pre 3.40, Post 4.09	post-pre Mean diff.=.69
Std Dev 1.746	p=.000

18. Using e-mail and the Internet is a good way to learn more about different people and cultures.

Pre 3.86, Post 4.33	post-pre Mean diff.=.47
Std Dev 1.663	p=.014

It should be noted that for these items that showed significant differences the attitudes of subjects toward the lab and technology was already positive. The experience reinforced their attitudes. The other questions did not show any significant change between these two assessments, indicating that the subjects already had positive attitudes toward the computer use and they kept the same attitudes throughout the duration of this study. The surveys and responses are in Appendices D1 and D2.

Neighborhood Resource

The lab is known as a safe place for after school activities, and parents became involved after checking it out for their kids. Young people came to the lab to use e-mail and surf on the web. They learned the value of the Internet for information and the need for critical thinking in the unmonitored world of information on-line. They have experimented with chat rooms and found that too many were not appropriate for an educational setting and many people on them were not to be trusted. Music and fashion, games and research seemed to be the most common uses for the web among youth. Many got free-mail accounts, such as Yahoo and others, and used it to communicate with their friends.

Students reported that they found it useful to practice typing and to use the word processor for schoolwork at the lab. This created authentic literacy experiences for those who were learning to use written language. They also used the lab opportunities to just become comfortable using PC's, playing games and finding their favorite music. Some students showed and talked about how the lab helped them with school. Adults used it for professional development and for writing projects. The Pascua Yaqui Tribal Police used the lab for training, as did the casino and the human resources office. Several summer programs were offered where individuals created family albums. Families came to take workshops together. One instance yielded personalized Christmas cards with digital family portraits. The newly formed Pascua Yaqui Youth Council used the lab as an office to prepare its agendas and announcements on the computers.

CD-ROM

The Pascua Yaqui Connection CD-ROM that accompanies this report includes data in form of charts, pictures, text such as interviews and inventories, findings and analysis and two-dozen video clips showing the lab being used and discussed by students and teachers, community members and staff. There are examples of the Even Start and Head Start lab sessions, after school activities for recreation and scholarship, and the family Christmas card workshop. Teachers talk about the impact the lab has had on some of their students. Staff members talk about what folks are using the lab for and how its use has grown. Video shows the lab in use by community members. They talked about what they were doing and what it meant to them. Comments included, for example:

- Linda Ferguson, “They (Even Start kids) are computer literate after the program here.”
- Middle-school boy. “I come here a lot after school.”
- High school girl. “I use it a lot to check email.”
- High school boy. “I’m looking up astronomers and their discoveries.”
- Mother. “The girls know it, but we’re learning too.”

The video clips are short and edited as representative of what transpired in the lab. What follows is a list of descriptions of each clip. This index is available on the CD-ROM.

High School

Pascua Yaqui Edge Kids – Lydia teaches a basic MS Word class to Pascua Yaqui Edge Charter High School class. They learn how to use the keyboard and save documents onto their own disks.

Résumé Writing Class - Pascua Yaqui Edge Charter High School class on Résumé writing with MS Word. Lydia describes the process.

Excel Quiz and Class – Pascua Yaqui Edge Charter High School class grading each other’s tests after a class in MS Excel. Hanna, their teacher, talks about how they utilize the lab for class and independently for review and extra assignments.

Lyrics On Line - This high school girl is looking up lyrics “for different songs on the radio right now. But the server is down...” She comes often to do homework and do research on the Internet.

Middle School

How to... - A girl from Lawrence Intermediate School talks about the software she is using. ClueFinders. She talks about the school subjects involved and how she is going to go through the levels.

Music on Line–Four middle school-age boys come in and energetically go about finding their favorite music on-line.

We do music... - “What are you doing with that?” She asked. The videographer is challenged. “Taking pictures of people using the lab, do you come here very often?” “Uh-huh.” “What kinds of stuff do you do?” “I play...(pause), I do. (Her friend helps) “Music, I do music.” They collaborate on the URL and get to the music videos. She lists the kinds of activities she could do, and gets help starting a reading program.

Pre School

Even Start – The Pascua Yaqui Even Start program visits the lab regularly. Linda Ferguson talks about how the thirty kids in the program use the lab once a week for a half hour and how they are computer literate after being in the program for two years.

Head Start – Little hands learn to use a mouse and sing along with the lyrics on screen. Three, four and five-year-olds come for an hour a month. Staff explains the operations that the youngsters are able to handle.

Community Activities

Job Search - Out of school, looking for a job on-line, this young woman gets help searching and printing.

Family Holiday Projects - A group of local families learn to use software and digital cameras to make personalized Christmas cards.

Pascua Yaqui Youth Council Agenda - High school girl from Southwest Alternative High School working on creating an agenda for the Pascua Yaqui Youth Council. She talks about that group and their activities, and how she uses the lab just to drop in and do e-mail

After School Activities

University Class work - Young woman downloading an assignment from the University of Phoenix. She talks about how she doesn't have a computer at home or at work so uses the lab whenever she needs to get on the web.

Flying and Shopping On-Line - During the after school time, high schoolboys find their favorite sites. One boy is learning to fly with a flight simulator, and other visits Tribal Gear, a shopping site.

PBS.org - During the after school time, a middle school girl tells us and shows us what she has been doing at PBSkids.org. Finding coloring pictures of her favorite characters and printing them out.

Teachers

Lawrence School - Two teachers from Lawrence Intermediate School talk about how they have seen their students benefit from having access to the lab after school.

Teacher Workshop - Teachers and staff from the lab, Lawrence Intermediate School, and the Southwest Center Alternative High School learn to use MS FrontPage. They discuss how they will use these skills with their students.

Staff

Sally Gonzales - An interview with the Director of the Pascua Yaqui Department of Education, Sally Gonzales. Sally talks about how the lab is an important part of the community's education program.

Lydia - The former lab supervisor talks about how it was when the lab first opened, with a T-1 line but no phones, how the number of users has grown and what plans she has for the future and expansion of the lab's services.

Amanda - Amanda Molina is the senior lab assistant. She is seen helping users during the after school program and she describes what the kids usually do. "They come in and go to music sites."

Juanita - Juanita is a lab assistant. She talks about how people are coming in looking for application programs more and more. She says that the kids are using the lab to do homework more and learning about new things. Adults come in to work on their own stuff and people from the different tribal offices have used it to go on line and do their work.

Discussion

The data suggest that personnel issues were very important to this program. The coordinator who was running the lab on a day-to-day basis was responsible for much of the success of the lab in bringing

information and communications technology into this village. She served as an advocate for the lab, encouraging parents to trust their kids at the site. She also instituted rules for kids' protection, as well as security for equipment. She made the needs of the lab known to the tribal administration while for much of the grant there was not a consistent Director of Education for the tribe. After her exit from the program the lab was seen as being on autopilot. The instructional programs were put on hold until the summer. The lab's evening and weekend hours were expanded. However, there was little expertise on hand to help users with anything but basic web surfing and word processing. Projects undertaken which counted on the lab to provide hardware and expertise were put on hold. Hopefully this will be rectified by the Tribe as other problems with the facility, such as connectivity, air conditioning and space for expansion, have been.

Projection

As the TIAP grant is closing, the benefits of the extension are being felt. In the wake of very significant personnel changes at the Tribe, when it looked like a vacuum was left in Pascua Yaqui Education, the good offices of the stakeholders produced a very hopeful situation for the continuance of the Community



Resource Lab. There were questions about the Tribe's interest in picking up responsibility for the lab operation and connectivity as the grant period closed.

As it turned out, a very positive meeting was held in June with the grant stake-holders, the UA Telecommunications people and the Tribe's IT officer. According to the Tribal IT representative, the Education Annex building next door to the lab has a T-1 connection, and linking the lab into the Tribe's Telecommunications network can easily be accomplished by the tribal IT office. Money that was being considered as designated for the monthly connectivity charge could be directed toward upgrading the lab and allowing it to expand into its new space. It was announced at this meeting that the Tribal Council had approved the move from the temporary building to the former Head Start building. A tour of that facility, to be vacated when the new Head Start building is completed this fall, showed it to be larger, more centrally located and well air-conditioned. Plans by Pascua Yaqui Education Department to purchase new furniture and to wire the two rooms are under way.

Pascua Yaqui Connection will provide for additional workstations, and teaching tools such as LCD projectors and screens, and additional productivity software to encourage more creative use of the computers. Graduate students from the UA continue to work with the staff as the new server has been set up to allow for server-side software installation and general access for maintaining the system. The plan has been to make user registration an online task. Sally Gonzales, Director of Education, has said that she is planning to keep the open position of lab supervisor a career-ladder position so that the staff can receive training while on the job.

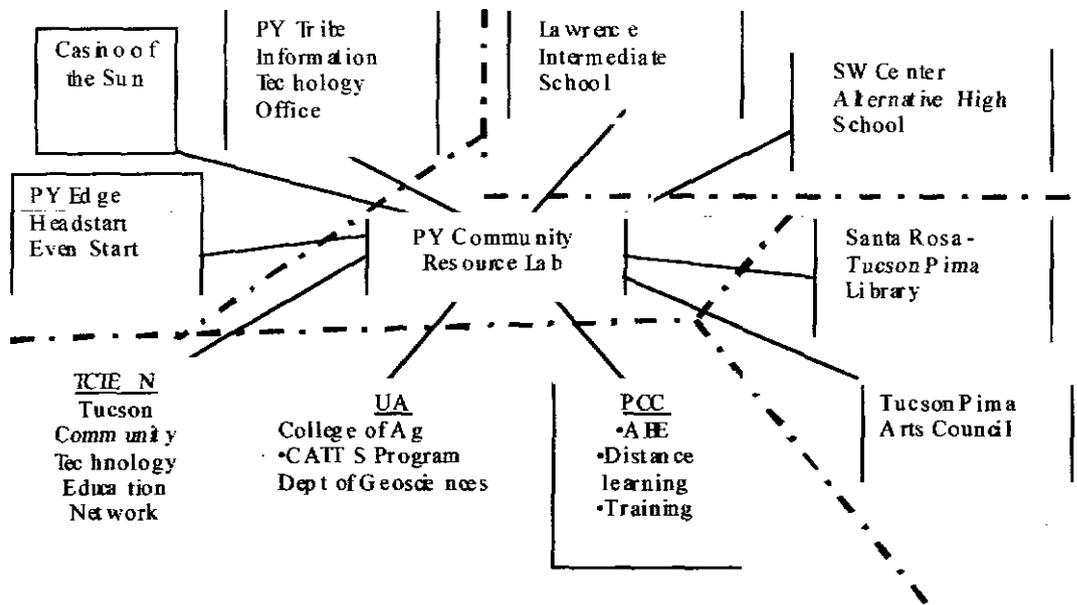
The decision regarding the purchase of programmed learning software was never taken. However, the lab is equipped with DVD players and PCC will provide their telecommunication 40-course DVD library. These courses comprise the state's general education curriculum for an Associate in General Studies degree. In addition, PCC will continue to offer Adult Basic Education, GED and professional development courses.

The lab seems to be poised to carry forward the Pascua Yaqui Tribe of Arizona Education Department's stated objective of integrating technology into the life-long learning experiences of tribal members. In June 2002, it was announced that the tribe would be moving the lab into new, larger quarters and that the connectivity would be maintained on the Tribal telecommunications backbone.

Related Partnerships

Recent work with local electronic community resources has shown that the context for high technology infusion is very important to acceptance and support. Context may include infrastructure, client base, and partnering. Rural areas have less access to experience with interconnectivity and hardware and server maintenance. Urban settings are better off in these areas, but have more competition for childrens' time. Both settings benefit from collaborative partnerships with other sites to share training, staff development and community resources. This collaboration between sites establishes the context for new technology to be introduced.

The TIIAP grant was a joint effort of a new partnership between the Pascua Yaqui Tribe of Arizona, the UA and PCC. Other strategic partnerships were set up with neighborhood schools, after school programs, the public library, municipal offices and arts organizations. These alliances helped the lab develop a model that would work, resources to develop programs and a way for the lab to interact with other parts of the learners' world. The lab benefitted from the many links both within the tribe and to the outside that were formed during its first few years. The following diagram illustrates that interconnectedness.



(Fig. #1) Diagram of collaborative links to Pascua Yaqui Community Resource Lab

The Pascua Yaqui Community Resource Lab is uniquely situated to serve many populations and to interact with many segments of the Pascua Yaqui Tribe of Arizona and the greater Tucson/Pima County community. Many tribal offices and agencies have discovered the Resource Lab and have begun to plan for it in their operations. Tucson Unified School District administers the three schools that serve the New Pascua Pueblo. The tribe supports programs for students and teachers at each. Each will benefit from the access that their clientele will have to the neighborhood lab. The city/county library and arts council are now more closely integrated into Pascua Yaqui community life. Through the Pascua Yaqui Connection grant PCC and UA have brought their resources together to strengthen Native American educational opportunities and span the digital divide.

APPENDICES

Appendix A. Software Library -2001

Learning Games

Sesame Street Deluxe Series

The Learning Company: Reader Rabbit Reading 1 & 2, Writing and Creativity

Reader Rabbit Reading Development Library

Clue Finders

3rd thru 6th Grade Adventures

Jumpstart: Preschool, Phonics, and Artist

Where in the World is Carmen Sandiego? CD-ROM

Dr. Seuss CD-ROM: Green Eggs & Ham. Cat in the Hat, Dr. Seuss' ABC

Thinkin' Things - FrippleTown

Bailey's Book House

Blaster Learning Series: Math Blaster, Science Blaster, Spelling Blaster, and Reading Blaster

Super Tutor Vocabulary, Spelling and Grammar

Imagination Express: Destination: Ocean

Space Academy GX-1

Virtual Labs – Electric City

Application programs

Kid Pix Deluxe – application program

PrintMaster – application program

Kid Works Deluxe application program

Instruction

Kaplan Higher Score SAT & ACT and GMAT*GRE*LSAT

Math Advantage Middle School

Math Advantage High School

Learn Office 2000 package: Word, Excel, and Access

Learning Windows 98

Learning 2000 – Stand-alone educational program

Software Library 2002

3D World Atlas and Almanac

A.D.A.M. The Inside Story

Amazon Trail II Ages 10-16

American Heritage Talking Dictionary

Big Thinkers 1st Grade

Body Works 6.0

Candy Land Adventure Ages 3-6

Casualty Kid on the road to First Aid Ages 8 - Adult

Compton's Reference Collection

Curious George Comes Home Ages 3 - 6

Furby Ages 4-7

I See Sue.. The T Rex Ages 4-7

The Little Mermaid

Math Invaders Ages 9 and up

Mr. Potato Head Activity Pack Ages 4-8

Multimedia Spanish

New Millennium Children's Encyclopedia 2002

Pre Calculus

Reader Rabbit Interactive Reading Journey Ages 3-6

The Princeton Review - Word Smart
Reader Rabbit's Kindergarten Ages 4-6
Reader Rabbit's Reading 2 Ages 5-8
Treasure Math Storm Ages 5-9
Richard Scarry's Busytown Best Activity Center Ever
Schoolhouse Rock America Rock
Talking Typing Teacher
Schoolhouse Rock Exploration Station Ages 6-10
Tonka Construction
Webster's History
Webster's Science
Webster's Millennium 2002 Encyclopedia
Winnie the Pooh and the Honey Tree Animated StoryBook
Writing Tutor
100,000 Web Images Collection
Business Card Maker
Complete CD Maker
Deluxe Wills and Trusts
Desktop Publisher
Forms Maker and Filler
Label Publisher
Learn Microsoft Office 2000
Learning Office XP
TaxACT/Desktop Assistant Bundle
Quicken Financial Planner QuickPlan Edition
Learning Windows 2000
Learn Windows 98
Learn Windows ME
Learning Windows XP
Mavis Beacon Teaches Typing
McAfee VirusScan 4.0
Nuts & Bolts 93 Deluxe
PC Attorney
PrintMaster 7.0
Professional Resume Plus
Quicken 2000 Deluxe
Quicken Family Lawyer Deluxe 2000
Home Depot Home Improvement 1-2-3
Healthy Cooking
Precision Street Maps USA
National Geographic Photo Gallery
Mosby's Medical Encyclopedia

Appendix B. Pascua Yaqui Education Department

1. Scholarship Program for high school kids going to and staying in college
2. Recruitment and Retention for college kids
3. Johnson O'Malley Program, until recently US program
Now being funded by the tribe. 3 yr – 12th grade
Family educational support
4. Pascua Yaqui Youth Council young people learning leadership skills
5. Head Start and Even Start pre school programs
6. Pascua Yaqui Edge Charter School collaboration
7. TIIAP Community Resource Lab
8. Tutoring Programs
9. Outreach to Guadalupe, Marana (20 families), Old Pascua, and 36th Street.

In addition, the Education Department has staff assigned to work in the neighborhood schools as resource teachers.

Appendix C. Factor Analysis: Creation of the posttest and item analysis

Of the collected pretest surveys, 240 were used for statistical analyses. The pretest contained 30 items. In order to reduce the length of the survey for the posttest survey, an exploratory factor analysis using squared multiple correlations as prior communality estimates was conducted in order to identify the number and nature of the factors underlying the data⁶. Only 146 entries went into factor analysis due to missing values. The principal factor method was used to extract the factors, and this was followed by a Varimax (orthogonal) transformation. A scree test indicated 7 meaningful factors, so these factors were retained for rotation.

Items yielding a factor loading of .45 and higher are considered to load on a particular factor. Thus, 10 items were found to load on the first factor, which was subsequently labeled as “computer use” factor. 5 items loaded on the second factor, and was labeled as “communication” factor. 3 items loaded on the third factor, which was labeled as “community” factor. 4 items loaded on the fourth factor, and was labeled as “negative computer use.” Two items loaded on factors 5 and 6 while three items loaded on factor 7, and they were labeled as “e-mail,” “writing,” and “negative writing on computer” respectively.

After the factors were identified, coefficient alpha reliability estimates were obtained for each factor.

Reliability estimates were:

Factor 1= .89,

Factor 2= .71

Factor 3= .79,

Factor 4= .75,

Factor 5= .56,

Factor 6= .68,

Factor 7= .61.

Of the seven factors, Factors 1, 2, 3, and 6 were included on the post-survey. Factor 4 was excluded because it contained negative statements, while Factors 5 and 7 were dropped because of low reliability estimates.

⁶ Hatcher, L. (1994). *A Step-by-Step Approach to Using the SAS System for Factor Analysis and Structural Equation Modeling*. Cary, NC: SAS Institute Inc.

PRE-TEST DATA JUNE 11,2001

Fill in the bubble beneath the appropriate word.

	POOR (1)	FAIR (2)	GOOD (3)	VERY GOOD (4)	EXCELLENT (5)
Please rate your typing ability in terms of your overall impressions including proficiency, speed, accuracy.	29	69	40	14	14
Please rate your knowledge and comfort with using computers.	17	55	60	26	9

Do you have a computer at home? 37 Yes N
 For how long have you had it? Average .204 years

For each of the following statements, please fill in the bubble beneath the appropriate description to indicate your agreement/disagreement:

Age: 2 - 59

Gender:

87 Male (1)

90 Female (2)

Ethnicity:

0 Anglo (1)

8 Hispanic (2)

3 African-American (3)

38 Native-American (4)

0 Asian (5)

0 Pacific Islander (6)

3 Other (7)

Native Language:

31 Yoeme (3)

84 English (1)

11 Spanish (2)

20 English/Spanish (4)

2 English/Yoeme (5)

2 English/Spanish/Yoeme (6)

Level of Education Completed:

40 Elementary (1)

46 Middle School (2)

47 High School (3)

25 Some College (4)

14 College (5)

3 Graduate School (6)

0 Post-Graduate Study (7)

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)	Not Applicable (6)
1.	I can write better essays when I do them on the computer.	1	11	32	75	39	21
2.	Revising my papers is a lot easier when I write them on the computer.	1	18	15	76	48	19
3.	I enjoy writing my papers by hand more than by computer.	12	64	30	41	10	17
4.	I enjoy seeing the things I write printed out.	1	3	22	93	40	18
5.	Writing papers by hand saves time compared to by computer.	27	51	32	40	11	15
6.	I enjoy using the computer to communicate with people around the world.	4	11	27	68	34	34
7.	I enjoy using the computer to communicate with my classmates.	3	18	57	56	10	30
8.	I am more afraid to contact people by e-mail than in person.	10	49	47	29	4	36
9.	I enjoy using the computer to communicate with my teachers.	7	25	56	40	8	37
10.	If I have an urgent question or a comment, I would rather contact my teachers in person than by e-mail.	7	13	40	65	20	27
11.	E-mail helps people learn from each other.	1	15	54	60	15	29
12.	An advantage of using e-mail is you can contact people any time you want.	1	9	32	87	24	22
13.	Writing to others by e-mail helps me develop my thoughts and ideas.	5	15	46	57	18	34
14.	Using e-mail and the Internet makes me feel part of a community.	4	12	46	62	16	34
15.	Using e-mail and the Internet is a good way to learn more about different people and cultures.	4	7	19	82	38	25
16.	Communicating by e-mail is a good way to improve my writing ability.	1	14	29	73	31	26

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)	Not Applicable (6)
17.	Learning to use a computer gives me a feeling of accomplishment.	1	6	21	83	58	5
18.	Writing by computer makes me more creative.	1	7	37	71	41	18
19.	Using a computer gives me more chances to read and write.	1	8	27	82	43	12
20.	I want to continue using a computer in my classes.	2	2	17	80	55	15
21.	Using a computer is not worth the time and effort.	44	70	19	20	8	10
22.	Using a computer gives me more control over my learning.	3	10	30	78	38	15
23.	I enjoy the challenge of using computers.	5	2	17	95	46	9
24.	Learning how to use computers is important for my career.	2	6	26	70	56	11
25.	I can learn more independently when I use a computer.	2	6	31	83	33	13
26.	Computers keep people isolated from each other.	12	60	42	34	12	11
27.	I can learn faster when I use a computer.	3	8	40	79	29	10
28.	Using a computer gives me more chances to practice English.	3	8	46	68	20	26
29.	Computers are usually very frustrating to work with.	14	76	34	28	11	9
30.	Computers make people weak and powerless.	55	70	21	14	2	8

Appendix D-2 Post test, with results (N=94)

*This survey is for evaluation of this program only.
Your name will not be used except to verify the code number above.*

02instr801

Do you have a computer at home? Yes (16) No (79)

For how long have you had it? Avg. 3.38 years

What kinds of software would you like to see in the lab?
It varies from games to Internet and to Microsoft programs

What hours would you like the lab to be open?
6-8 AM (2) 2-4 PM (6)
8-10 AM (7) 4-6 PM (21)
10-2 PM (3) 6-10 PM (19)
24/7 (26)

Age: 18.1 years (varies from 7 to 56) Average
18.1 years (varies from 7 to 56)

Gender: Male (47) Female (47)

Native Language:

English (62)
Spanish (1)
Yoeme (1)
English/Spanish (23)
English/Yoeme (2)
English/Spanish/Yoeme (4)

Level of Education Completed:

Elementary (18)
Middle School (30)
High School (25)
College -some (3)
College (11)
Graduate School (1)
Post-Graduate Study (n/a)

Ethnicity:

Anglo (1)
Hispanic (8)
African-American (1)
Native-American (71)
Asian (n/a)
Pacific Islander (n/a)
Other (10)

For each of the following statements, please mark the square beneath the appropriate description to indicate your agreement or disagreement:

	Strongly Disagree	Disagree	Neither Agree Or Disagree	Agree	Strongly Agree	N/A
1. I can write better essays when I do them on the computer.	7	2	13	34	28	9
2. I enjoy writing my papers by hand more than by computer.	4	5	9	41	26	9

3.	I enjoy seeing the things I write printed out.	5	7	41	30	9	
4.	I enjoy using the computer to communicate with people around the world.	1	11	13	33	12	20
5.	I enjoy using the computer to communicate with my classmates.	2	13	15	26	11	21
6.	I enjoy using the computer to communicate with my teachers.	2	3	11	48	22	6
7.	E-mail helps people learn from each other.	2	2	15	44	21	6
8.	An advantage of using e-mail is you can contact people any time you want.	2	3	11	44	23	7
9.	Using e-mail and the Internet makes me feel part of a community.	3	1	14	41	24	5
10.	Communicating by e-mail is a good way to improve my writing ability.	3	3	16	43	18	6
11.	Learning to use a computer gives me a feeling of accomplishment.	2	7	10	48	20	3
12.	I want to continue using a computer in my classes.	2	6	17	41	17	5
13.	Using a computer gives me more control over my learning.	2	5	17	35	17	12
14.	I enjoy the challenge of using computers.	2	6	15	32	17	19
15.	I can learn more independently when I use a computer.	2	8	13	34	17	18
16.	I can learn faster when I use a computer.	1	5	18	28	18	20
17.	Using a computer gives me more chances to practice English.	3	6	22	28	15	19
18.	Using email and the Internet is a good way to learn more about people.	3	3	13	33	25	16

Appendix E. Web Resources posted on the walls. April 2002

Search Engines

www.yahoo.com
www.yahooligans.com
www.webcrawler.com
www.infoseek.com

Homework help

www.eplay.com/homework/
www.brainpop.com
www.afterschool.com
www.cbc4kids.ca
www.ash.udel.edu/ash
www.EnchantedLearning.com/school/index.html
www.washingtonpost.org/kidpost/
www.wvpubcast.org/homework
www.discovery.com/stories/skinnyon/skinneyon.html

Other

www.4kids.org
www.disney.com
www.coloring.com
www.beaniebabies.com
www.zainybrainy.com
www.family.go.com
www.sesamestreet.com
www.foxkids.com
www.comics.com
www.safesurf.com
www.acekids.com
www.scholastic.com
www.whitehouse.gov
www.child-safe.com

To: Thomas Hardy
Program Manager
Department of Commerce

Chris Lamar
Project Manager
Pima Community College

From: Marigold Linton, Ph.D.
Director, American Indian Outreach
The University of Kansas

Date: September 12, 2002

Final External Evaluation Report of the Pascua Yaqui Connection Project, Award Number 04-60-98039

Executive Summary:

Grant a Worthwhile Investment: The U.S. Department of Commerce funded the Pascua Yaqui Connection project as part of their effort to provide resources to communities that lacked computer technology, connectivity and access to the Internet. Any activity that involves interactions between mainstream institutions and tribal entities must anticipate at least a minor “clash of cultures.” These gentle bumps as institutions “collide” may cause some uneasiness on both sides. Although not always commented on explicitly in this report, these may be discerned throughout the project. However, from the perspective of one who has seen and been involved in a number of such efforts, I judge the Pascua Yaqui Connection Project to constitute a success and, moreover, to provide an interesting model of institutions moving forward in the face of such obstacles. Project personnel, when confronted with a variety of difficulties in the collaboration, are to be commended for having persisted and/or having moved creatively in new directions.

Since its original implementation in September 1999, the Resource Laboratory at New Pascua has had some ups and downs, but now comprises an important resource to the community that will continue into the future. It serves many tribal members of all ages, will move to a more central location on the reserve and will continue to function in what promises to be **an enhanced form** after the end of the grant.

Because of difficulties in implementing the University of Arizona’s School of Agriculture Southwest Project in the Pascua Yaqui schools, the team focused on expanding the range of technology opportunities in other ways. The opportunities selected enhance and will continue to increase the use of the Resource Laboratory resources. These additional opportunities are rich and full of promise. Like the original Southwest Project they are attractive to tribal members, involve considerable hands-on activities and avoid the obstacle of requiring teachers to adopt a curriculum to assure success. These new efforts are likely to persist.

The originally ambitious but fundamentally flawed evaluation component was replaced with a simpler, more functional approach. Efforts to assess changes in performance beyond the lab that result from lab experiences proved not to be feasible. Instead, a survey obtains demographic

was employed: a CD ROM representing the activities of the laboratory through a series of vignettes. These materials provide the sponsor an excellent sense of lab activities, expose the community to a new technology and have additional value to the community in characterizing laboratory activities.

Personnel:

In my mid-grant report I indicated I was impressed with the personnel. Chris Lamar, Program Manager, has remained the strong center of the program and has continued to capably coordinate program elements. A number of the players have changed significantly over the 18-month gap between my visits. Several key losses are balanced by the addition of new key players and as a result, overall, the new team is stronger. The new evaluator, David Betts, has a more realistic conception of what is possible in evaluating the project and within these constraints has produced a carefully documented evaluation of the lab. I was much impressed during my first visit with Rosa Anchondo, Director of Education for New Pascua, however, I believe the newly appointed Director of Education, Sally Gonzales, brings both the proper attitudes and the political savvy necessary to assure the continuation and vigor of the Resource Laboratory after the end of the grant. The weaknesses in the lab management as the result of the departure of the first laboratory manager is unfortunate but there are promises that this will be remedied.

The New Pascua Resource Laboratory (NPRL):

[I visited the New Pascua Resource Laboratory with David Betts, internal evaluator, and met with Amanda Molina, senior lab assistant as well as teachers and numerous students of various ages.]

Existing Laboratory: The laboratory is well equipped with computers purchased through the grant. The laboratory has been reconfigured since my last visit and while it remains too small and sometimes becomes too hot, it presently functions well. Students working on complex projects are provided "private" space so they are less disturbed by the sometimes noisy activity of other students. I had an opportunity to observe students at various levels work in the laboratory. Two different classes used most of the space during their occupancy. More casual users worked on their projects around these high demand periods. The atmosphere of the lab was friendly and students appeared to enjoy themselves while business (e.g., a reading lesson) was being conducted.

Personnel issues in the laboratory were clear: the senior lab assistant took over the responsibilities of "managing the lab" with the departure of the original highly skilled and professional laboratory supervisor. Unfortunately the new senior lab assistant lacks the training and background necessary for her to comfortably tackle the technology issues as they arise. Despite the University of Arizona's willingness to provide graduate students to assist with the management, the articulation has not been effective probably because of the assistant's discomfort with the technology (e.g., her reluctance to utilize the server as would be appropriate). These kinds of problems – often encountered in reservation settings where few tribal members have appropriate technical skills – complicate implementation of technology programs. It must be emphasized that the senior lab assistant is highly responsible. She keeps the laboratory open during the specified hours – and did so during the period of my visit by working extraordinarily long hours to cover for the lab assistant who was ill. The laboratory assistants are not sufficiently well trained that they maintain sign-in sheets with appropriate

regularity. The promise that registration and attendance will be handled on line would be a considerable improvement. These records remain important after the end of the grant because, properly maintained, they will provide justification for continuation of or increases in resources.

The software library has expanded considerably over the past two years and covers a wide range of needs and specialties. An earlier concern was the lack of sufficient materials for those who regularly worked in reading and mathematics. Steps have been taken to alleviate these shortfalls. A listing of materials appears in the appendix of the internal evaluator's report.

Promises for the Future: It is anticipated that within the next months New Pascua Resource Laboratory will move into larger, more central quarters. This will occur when the centrally located Head Start Program moves into a nearby large, beautiful almost completed building in the central tribal complex. The building vacated by Head Start has been promised to the Education Department, whose director has specified that a portion of the space will go to the NPRL. Unlike the present modular building, the air conditioning will be more than adequate to accommodate the computers and the frequently crowded conditions. The promised new location is particularly fortuitous because of its proximity to the gymnasium and other tribal buildings, including the new Head Start building. Incidental drop-ins will increase and usage should expand simply because of the increased convenience. It is anticipated that the new location will significantly increase the lab's usage.

The tribal IT department has recently taken over the connectivity and maintenance of the laboratory – as had long been promised. This is an excellent show of commitment on the part of the education director. Although it would have made sense to have gotten the tribal IT department involved at an earlier stage, the frank admission was that the Tribe wanted the grant to pay for maintenance as long as it had funds. Also promising, the education director has indicated repeatedly that the open position of lab supervisor will be a career-ladder position to assure that staff can receive on-the-job training. The present senior lab assistant has indicated an interest in the position when it finally comes open and with training she should perform adequately.

Summary of Resource Laboratory Prospects: The crucial issue as the project ends is the extent to which the Tribe takes over the associated infrastructure needs. The prospects appear excellent. The last word is that the competent tribal IT department has taken over the connectivity and maintenance of the Resource Laboratory. The Education Department has supported the move of the Resource Laboratory to larger, better and more central space. The laboratory personnel will be placed on a career ladder so they are assured appropriate training. Hiring and training of appropriate personnel is essential and seems likely to occur. The connections already made between the laboratory and other elements in the broader Tucson/Pima community are likely to continue.

Outreach Projects:

The original conception of the grant was to complement the Resource Laboratory with teacher training on materials particularly appropriate for use with Pascua Yaqui students. For a variety of reasons the teacher project could not be implemented as was planned. To supplement/replace this project several other projects that encourage the use of technological services in the community were developed. Several of these are summarized briefly below.

The Pascua-Yaqui Connection (Web site)

The Pascua-Yaqui Connection Web site developed with support from this grant is handsome, interesting and complex enough it invites one to return. The Pima CC and U of A staff that have built and maintained the site have apparently worked well with tribal cultural representatives. The use of the web site as the default screen for the lab Internet browsers ties the lab firmly with the tribal culture.

<http://www.elearn.arizona.edu/pascuayaquiaz/about.html>

Lawrence Intermediate School

Garden Project: [Present during my visit were Leza Carter, David Betts, several classes of students, student assistants and a plethora of earthworms.] For the past few years Lawrence Intermediate School has had a garden project that focuses on drought resistant plants that can be grown in the hot dry community. Contiguous with the school, this program is popular with the students and the community. Garden produce provides the basis for a fall feast that is well attended. The project involved a newsletter, a web page and a video. Training to support these projects helped to involve teachers and staff with the tools available at the Resource Laboratory.

Literacy and Curriculum Instructor: [Present during my visit were Gopa Goswami and David Betts.] In an effort to introduce more technology into the classroom, the Pascua Yaqui Connection was worked with literacy and curriculum instructor at Lawrence Intermediate School. At the time of my visit materials were still in the developmental stage but a number of successful community outreach activities were underway.

Tucson-Pima Arts Council (TPAC)

[Present during my visit were Chris Lamar, David Betts and Tracy Skinner, technician.] The Pascua-Yaqui Connection includes close collaboration with the downtown Tucson-Pima Arts Council. During the past two summers several Pascua Yaqui students learned Geographic Position System and digital panoramic visualization. The skills acquired through the TPAC program can be practiced and shared at the Resource Laboratory. These skills are highly valued by the Tribe.

Teacher Training Project

[Present during my visit to the School of Agriculture Southwest Project laboratories were Rob MacArthur, Michael Rose and Chris Lamar.] The materials created by the Southwest Project are genuinely exciting and particularly relevant to the Pascua Yaqui population targeted by the grant. Despite the fact that the basic materials are provocative and likely to capture the interest of American Indian youth exposed to them, teachers were not able to implement them in their classes. My appreciation for the sites developed is enhanced by my understanding of the difficulties of identifying materials that can spur the interests of Native youth. I am pleased that science modules including groundwater units developed by partners are being disseminated more broadly to American Indians (e.g., through presentations to teachers at the SACNAS Conference (Society for the Advancement of Chicanos and Native Americans in Science)).

Internal Evaluation

[Based on discussions with internal evaluator David Brett and complemented by his written reports and discussions with program manager Chris Lamar.] Because of the problems with evaluation detected during the last visit and because of the realities of implementing the ideal

evaluation that would have assessed the impact of exposure to learning modules on “real world learning,” alternative evaluation efforts were developed. As indicated earlier, the evaluation is much more straightforward and functional than originally proposed. Although as an evaluator one might prefer some of the more rigorous alternatives that were considered, the reality an evaluator working with the tribal groups must confront is that one must make modifications to match the temper and tempo of the group.

The Cognitive Questionnaire and the Meta-Cognitive Questionnaire that were originally proposed were abandoned because they were inappropriate (as documented in detail by the external evaluator in the mid-cycle review).

Utilization of the Laboratory: Attendance records have not been consistently maintained during the laboratory’s existence (in part because of changes in and lack of training of personnel) but a clear pattern of increased usage can be discerned. Despite the daily, monthly and other variations, it is clear that overall the total number of lab hours and the total number of users have increased over time. The daily and monthly pattern of usage seems quite unique to the Pascua Yaqui Tribe. Quite remarkable is the report that over a quarter of the population of New Pascua registered and used the laboratory. As indicated elsewhere, locating the laboratory where it will be more accessible virtually assures that usage will continue to increase. **Summary:** As indicated in an earlier section, maintaining attendance records and monitoring satisfaction remain important even after the end of the grant because such records are essential to assure justification for continuation or increases in resources.

Information on Demographics and Attitudes were obtained when individuals registered for the lab and again from one to six months later. These surveys provide useful information on the users. The data appear in detail in the report of the internal evaluator. Briefly, the initially positive attitudes of users toward the technology were enhanced by experiences in the laboratory. Tribal members across a wide range of ages used the laboratory for a number of diverse purposes: academic, professional and personal.

CD-ROM: The CD-ROM created by the internal evaluator documents activities in the laboratory for more than a year and provides information that is useful to the agency as well as to the Tribe. It provides a clear sense of the population that is served and the kinds of activities that have transpired in the laboratory during this period.

Bottom Line: A line from the conclusion of the internal evaluator’s report, provides a nice summary: “The Pascua Yaqui Community Resource Lab is uniquely situated to serve many populations and to interact with many segments of the Pascua Yaqui Tribe of Arizona and the greater Tucson/Pima County community. Many tribal offices and agencies have discovered the Resource Lab and have begun to plan for it in their operations.”

The Site Visit:

I visited the Pascua Yaqui Connection Project on May 13-14, 2002. During the two-day period I visited Pima Community College, the Resource Laboratory in New Pascua, the Education Department at New Pascua, Lawrence Intermediate School, Tucson-Pima Arts Council and the College of Agriculture, University of Arizona. During that visit I met for extended periods with:

Chris Lamar, PCC, Project Manager
David Betts, Internal Evaluator, University of Arizona.
Rob MacArthur, College of Agriculture, University of Arizona
Michael Rose, College of Agriculture, University of Arizona (Technician/student)
Sally Gonzales, Director of Education, New Pascua
Amanda Molina, Senior Lab Assistant, Resource Laboratory, New Pascua
Leza Carter, Lawrence Intermediate School (Garden Project/Tribal employee)
Gopa Goswami, Lawrence Intermediate School (Literacy and Curriculum)
Tracy Skinner, Tucson-Pima Arts Council

Comment on my background:

To place this evaluation in context I provide a brief description of my background. I am a Cahuilla-Cupeno raised on the Morongo Reservation in Southern California. I am a cognitive psychologist who has been a full professor at two major universities (San Diego State University and the University of Utah). I have worked as an administrator at Arizona State University and the University of Kansas. In the latter capacity I have worked for more than a decade on skills and learning on multiple reservations in Arizona and at Haskell Indian Nations University in Kansas. In the last four years in my role as Director of American Indian Outreach at the University of Kansas I have garnered more than \$10 million from National Institutes of Health for mathematics and science training for American Indian college students at University of Kansas and Haskell Indian Nations University. Many of these students come from Arizona and share the educational difficulties of the Pascua Yaqui. I serve on the National Academy of Sciences Minority Evaluation Committee, assist the NIH's National Human Genome Research Institute on some evaluation issues and was a member of a panel of American Indians recently assembled to discuss evaluation of American Indian projects funded by NSF. Finally I created the evaluation plans for each of the large grants I developed at the University of Kansas and share the responsibility for carrying out the evaluation of these large, complex multi-institutional programs.