U.S. DEPARTMENT OF COMMERCE
National Telecommunications & Information Administration

Evaluation of the
Telecommunications and Information Infrastructure Assistance Program

Case Study Report

Plugged In – Learning Through Technology
95039

East Palo Alto, California

Site Visitor:	Laurie Somers
Dates of Visit:	May 10-11, 1999

PREFACE

The following case study report is being issued as part of TIIAP's ongoing evaluation initiatives designed to learn about the effects of TIIAP funded projects. This report is one in a series of twelve based on in-depth case studies conducted in 1999 to study three subjects: (1) issues particular to rural communities (2) issues particular to urban communities, and (3) challenges in sustaining information technology-based projects. The case study reports give us evidence about the special challenges that each project faced and provide information for a better understanding of factors that can facilitate the success of such projects.

In addition to being urban or rural, the case study projects were selected because they involved distressed communities, represented innovative models for services, and affected measurable community outcomes. The case studies, conducted under contract by Westat, an independent research firm, consisted of extensive review of project files and records, interviews with project staff, representatives of partner organizations, and project end users. In addition to the 12 individual reports, a summary of findings across the projects is also available on the NTIA website.

NTIA wishes to thank the case study participants for their time and their willingness to share not only successes but also difficulties. Most of all, we applaud your pioneering efforts to bring the benefits of advanced telecommunications and information technologies to communities in need. We are excited about the case studies and the lessons they contain. We believe that these projects provide a unique insight into the variety of ways to eliminate "the digital divide" which exists in our nation. It is through the dissemination of these lessons that we can extend the dividends of TIIAP funded projects nationwide.

We hope you find this case study report valuable. You may obtain other case study reports, a summary of findings of the collected case studies, and other TIIAP publications through the NTIA website (www.ntia.doc.gov) or by calling the TIIAP office at (202) 482-2048. We also are interested in your feedback. If you have comments on this, or other reports, or suggestions on how TIIAP can better provide information on the results and lesson of its grants, please contact Francine E. Jefferson, Ph.D., at (202) 482-2048 or by email at fjefferson@ntia.doc.gov.

Stephen J. Downs, Director
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Project Name	Plugged In – Learning Through Technology
City/State	East Palo Alto, California
Grant Recipient	Plugged In – Learning Through Technology
OEAM Number	95039
Application Area	Education, Culture, and Lifelong Learning
TIIAP Grant Amount	$192,995
Match Amount	$247,355
Date of Site Visit	May 10-11, 1999
Site Visitor	Laurie Somers
Abstract	Plugged In in East Palo Alto, CA, a 1995 TIIAP grantee, significantly expanded an existing technology access program. Under the TIIAP grant, the project provided three main services: public access to the Internet, training to individuals and groups, and support to community agencies in integrating telecommunications into their programs. Additionally, the project established an Internet presence for East Palo Alto, called epa.net, that provided residents with a community calendar, lists of social services and city agency contacts, local job listings, links to agencies' websites, and city council meeting agendas. Plugged In's focus was on providing access to different populations and designing solutions to their particular problems, rather than designing a single technology solution for the area. Plugged In currently runs three projects: Plugged In Enterprises, a teen web design business; Technology Access Center, a drop-in computer center; and Community Kids, a free drop-in after-school program focusing on technology and visual arts. Positive outcomes are apparent for teens running the web design business and customers of the access center, and the children's program, while not unsuccessful, will soon undergo an enhancement. Most notable about Plugged In is its strategy for sustainability. Plugged In's history, and likely future, is a complex maze of starting many different projects, determining which work and which need work, improving the good ones, and reorganizing those less successful. The organization is very organic and has always worked in an iterative manner, ever changing to meet the needs of the community and its own longevity.

A. Background

Community Characteristics

East Palo Alto is a diverse and underserved community located amidst the booming communities of Silicon Valley, midway between San Francisco and San Jose. The differences between East Palo Alto (EPA) and neighboring Palo Alto are striking. EPA has four times the unemployment rate of Palo Alto. Only 14 percent of EPA residents have a 4-year college degree, whereas Palo Alto is home to Silicon Valley executives and Stanford University professors with a mean family income of $70,000. Eighty percent of the EPA population receives public assistance. While no longer the nation's leader in per capita murders as it was in 1992, EPA still has a high crime rate. In 1995, only 900 jobs were available in EPA for its approximately 25,000 residents. Most residents commute to low-paying jobs that rarely have electronic networks or even computers. In Silicon Valley, there are two jobs for every qualified applicant and 18,000 unfilled technical and managerial jobs. But EPA residents are unable to take advantage of these opportunities because they lack the necessary skills.

Project Overview

As would be expected in such a community, EPA is a technologically underserved community amidst the country's most abundant high-tech region. Children in EPA do not have the same opportunities as their counterparts in Palo Alto. Access to the technology provides children an opportunity to infuse their daily lives with the means of preparation to compete in the job market of the future. Teens in EPA do not have constructive activities after school, particularly those that can teach them job skills and explore future opportunities. Without computers and Internet access, adults cannot obtain the technical training they need to get the jobs that are available to others, particularly training in an environment that addresses their fear and educational disadvantage. Finally, community agencies must have access to electronic resources, discussion groups, and funding opportunities in order to enhance their service provision and communication among local organizations. The expansion of Plugged In under the TIIAP grant was designed to accomplish all this. The project took a three-prong approach in connecting EPA:

- Public access to the Internet.
- Training to individuals and groups.

- Support to agencies in designing programs that use telecommunications to address needs they and their clients face.

In addition, Plugged In created an Internet presence for EPA through epa.net,[1] an online information repository. The website included a community calendar; lists of social service and city agency contacts, phone numbers, and hours; local job listings and links to job boards; links to websites created for the partner agencies; and city council meeting agendas, among others.

Another project begun as part of the TIIAP grant was an online teen discussion forum, StreetNet, facilitated jointly by Plugged In teens and a group in Chicago. Participating teens were employed part time to develop the content, design the web pages, and moderate StreetNet discussions.

The focus of Plugged In's project was more on providing access to different populations and designing solutions to their particular problems, rather than designing a single solution for all agencies. Access was provided through extended hours and additional equipment at the existing drop-in facility, as well as establishing terminals for public use at various partners' facilities. Plugged In staff provided to all users free and low-cost formal and informal training on using electronic networks. Technical partners installed and configured equipment at six community agency locations, and Plugged In provided volunteer mentors to support each agency in its transition to using the technologies. Plugged In designed web pages for 25 agencies.

Each of the satellite sites was equipped with an Internet-capable terminal, appropriate software, and a modem. TIIAP funds purchased 10 computers and a Windows NT server for the drop-in center. Additional donations throughout the grant period funded an additional 13 computers, 2 laser printers, 1 ink jet printer, a copier, and a poster-size plotter. About a year before the grant period, Plugged In's Internet connection was upgraded to ISDN.

[1] The original name of Plugged In's project was TIIAP/epa.net, and the name of the website was epa.net.

Project Status at the Time of the Site Visit

By May 1999, 2 years after the grant period ended, Plugged In had undergone several stages of development and has another reorganization planned. The number of users in the drop-in facility had expanded, as did hours of operation; however, the range of services was reduced to only those that staff felt could be sustained. Plugged In had grown from a start-up with a $450,000 budget and 10 staff members when its TIIAP grant began in the fall of 1995 to a $1 million organization with 15 employees by the end of the grant period in the spring of 1997. Plugged In is now resting comfortably with a budget of $525,000 and a staff of 10. How they got there is the story of this case study.

Plugged In currently runs three major projects: Plugged In Enterprises, a Technology Access Center, and Community Kids. Staff report that each is stronger than ever before. The most evolved, Plugged In Enterprises (PIE), is a teen-run web design business that grew out of the design and development of the epa.net website. It is a profit-generating business that brings in at least $2,000 per month in revenues (see Section E – Sustainability and Project Expansion).

The Technology Access Center is a drop-in computer lab with 16 computers (mostly PCs and several PowerMacs), a variety of software applications, 2 scanners, a grayscale laser printer, 2 color printers, and a digital camera, all connected to the Internet using an Asymmetric Digital Subscriber Line (ASDL). Users can check out self-learning materials, books, and CD-ROMs, and can receive assistance on almost any computer-related need from staff. A variety of other resources are available at competitive rates: copy machine, fax service, stationery (envelopes, folders, labels, business cards, resume paper), and monthly bus passes (not sold anywhere else in EPA). The center is divided into four resource areas: Design Central, Biz Info, Teen Central, and Health Resources. Each area has bulletin boards providing information about the topics and a space on Plugged In's website providing links to Internet resources. The center is open Monday through Friday from 9 a.m. to 9 p.m. and Saturday and Sunday from 1 p.m. to 4 p.m. Elementary students can use the center only on weekends, and other students can only use the center for homework between 3 and 5 p.m. and for other educational activities before 7 p.m. Junior high students must leave at 7 p.m. Users pay $1 per day or can become members for $15 per month or 4 hours of volunteering.

Community Kids is a free drop-in program that focuses on technology and art and is open every day from 3 to 5 p.m. In the technology center, children can work on literacy activities, digital art activities, and a variety of independent software activities on eight computers. Children also have the opportunity to complete an art project each day. The program also provides tutoring assistance for first through sixth graders and a middle school magazine development project. Community Kids will be reorganized in the fall of 1999 to Plugged In Greenhouse (see Section E – Sustainability and Expansion) using the principles of Plugged In Enterprises and focusing more on product development.

The community network website, epa.net, is being run by two former staff members working as volunteers but currently associated with Plugged In only as board members. Technical assistance in integrating technology into community agencies' work and technology support are no longer offered to community agencies. Formal classes are offered informally or on a selective basis, except for the teen web design training. The StreetNet teen discussion forum had grown into Plug In!, available through a major Internet service provider's website, and then redesigned and spun off from Plugged In as Open Voice.

B. Community Involvement

Characteristics of the Grant Recipient Organization

Plugged In was created in 1992 by a law school graduate with an Echoing Green fellowship. Prior to that, he had run computer labs at Glide Memorial Church in San Francisco's Tenderloin district and at a Boys and Girls Club in Menlo Park, CA, near Palo Alto. These programs ran as drop-in programs and focused on basic math, reading, and writing skills. With the Echoing Green fellowship, the founders developed more structured, project-based computer learning at the Boys and Girls Club. After moving into its own location in EPA, Plugged In "focused increasingly on developing programs that use computer and electronic communications technologies to offer fairly open-ended learning experiences…[and] as a tool to connect people and create things."[2] They learned quickly that as an organization with few ties to the community, they must work in partnership with community-based agencies. Initially, they worked with an after-school program working on storytelling projects with children and with an adult outpatient

[2] Plugged In Story (http://www.pluggedin.org/toolkit/story/intro.html).

drug and alcohol recovery program creating original newsletters. They gradually increased the staff, working with more community agencies and teaching more classes. This growth was also sprinkled with changes. Plugged In's history, and likely future, is a complex maze of starting many different projects, determining which work and which need work, improving the good ones, and reorganizing those less successful. The organization is very organic and has always worked in an iterative manner, ever changing to meet the needs of the community and its own longevity.

Under the TIIAP grant, Plugged In managed the expansion of its facilities and hours, provided technical assistance to its partners, and trained both community members and agency staff in using computers and other technologies to address issues they face.

Partnerships

Plugged In identified a number of partners that contributed in different ways.

Community Partners. Several social services agencies in East Palo Alto signed on initially:

- Shule Mandela Academy – independent African American school
- Free at Last – adult recovery services
- Families in Transition – support services for Latinos

Others added during the grant period include:

- Community Development Institute
- EPA Community Alliance and Neighborhood Development Organization (EPA CAN DO) – housing, economic, and neighborhood development
- Children's Preservation Network
- EPA Community Law Project – free legal services
- EPA Historical and Agricultural Society

All but Free at Last, which is located across the street from Plugged In, served as satellite locations. Plugged In developed and housed simple web pages for a total of 25 agencies. Nine agencies participated in the children's programs, and eight participated in teen programs.

Through Playing to Win, which establishes relationships between computer learning centers nationally, Plugged In worked with Street Level Youth Media, a group in Chicago, to establish StreetNet, an online youth forum designed to create a space for urban teens to discuss the unique challenges they face.

Other Nonprofit Partners. CompuMentor provides technical support in computers and communications applications to nonprofits in the Bay Area. The Community Television Network designs and implements video projects for teens.

Corporate Partners. Bay Networks and Global Village design, implement, and maintain local area networks and wide area networks, including TCP/IP networks. Plugged In is currently connected to the Internet using an Asymmetric Digital Subscriber Line (ASDL) donated by Pacific Bell.

At the time of the site visit, Plugged In had more partners than staff could count, depending on how loosely partnerships are defined. Partnering ranges from community agencies using Plugged In's facilities to provide their own classes, to receiving direct training from Plugged In, to receiving informal systems advice for their own networks. They include formal partners as those with whom they work on grant projects. Those that are working most with Plugged In are those that are most motivated to integrate technology into their work. Providing formal classes for partners was difficult to sustain because one staff member could serve only two agencies effectively. They also found it difficult to intertwine their curriculum with the goals of each agency and no longer had the capacity to design specialized courses for each agency.

Currently, several agencies (Free at Last and Shule Mandela) support their own trainers and use the Plugged In computers for classes. This model builds on the idea that it is best to learn by teaching others, and so this model better builds capacity at the agencies themselves.

Start Up, a business development organization, teaches classes for the public in the Plugged In lab with the support of its own funders.

Mothers On a Mission to Save Our Children (MOMZ), an informal group of mothers interested in the academic development of youth, was "scholarshipped" by Plugged In at the time of the site visit to receive training. MOMZ has no organizational infrastructure or budget, so Plugged In provides training classes. Similarly, Plugged In will next provide training to a group of Spanish-speaking fathers through Even Start. There is no formal criteria for scholarship eligibility; these are decided on a case-by-case basis.

Respondents said that maintaining nonprofit partnerships in a business model is difficult. The TIIAP grant provided a good incentive where Plugged In could say the government would match every dollar the agencies gave. But when TIIAP ended, so did financial and in-kind support from the community agencies.

Community Outreach

Involving Community Stakeholders. Plugged In staff did not conduct a formal needs assessment specifically for the TIIAP grant. However, the program already had a presence in the community. When it first moved to the current location in EPA, to expand its space several years prior to the grant period, staff met with community leaders, the mayor, and staff of the community agencies to inform them of their availability. They had also conducted a brief, informal survey about the kinds of technology people had at home. Most had telephones, televisions, and VCRs, and many had pagers and cellular phones, but only a small minority had computers. Moreover, 90 percent of parents felt that access to the Internet was important for their children even though most of the parents probably did not know what the Internet really was. In a community surrounded by Silicon Valley's high-tech world, awareness of what they lack is apparent in every television news program and both the San Jose and San Francisco newspapers.

During and after the grant period, the community has been heavily involved in Plugged In's development. As part of the TIIAP application, Plugged In formed a Project Advisory Council made up of representatives of the community agencies that signed onto the

project. The group met regularly during the grant period to monitor the project's progress toward its goals. The idea of the community stakeholders driving the direction of the project was built into the original plan. Part of Plugged In's epa.net strategy with the community agencies was to approach them with a solution to a problem the agencies had identified. Staff felt it important to start with what the agencies were interested in, rather than handing them a new process or system and laying it on top of their existing problems. After informing the community of the services available, in some ways they simply waited for people to call them. Again thinking as an outsider organization, they were wary of shoving a project at already overburdened agencies. Staff found that usually what the agencies needed came out of what they already had, and as Plugged In provided more assistance, needs developed further. Thus, the project's work with the community agencies was driven by the individual agencies themselves, and stakeholder involvement was critical throughout the grant period.

Project Outreach. As an organization founded by outsiders to the community, staff felt Plugged In was perceived as an outsider. They, therefore, were very concerned about gaining credibility and spent a lot of time evangelizing Plugged In to the community. They were less concerned about convincing people that computers and Internet technology were necessary and more concerned with representing Plugged In as the place to get access.

During the grant period, Plugged In held several community forums at the center. These were run as open houses, and visitors were provided drinks and snacks. Staff showed slides of popular websites and provided an introduction to the Internet and to Plugged In. They estimate that over 200 community members attended the three functions. But staff spent the majority of their outreach time, and indeed a good portion of their time in general, out in the community. They attended all community gatherings, meetings, and events as the representative of technology and usually had a booth with a computer for demonstration. Staff and volunteers also placed flyers in community centers and agencies, libraries, schools, and at community events.

Each staff member continues to participate in a different community coalition, and Plugged In continues to stay well-networked in the community. Staff plan to continue this involvement, especially as the community undergoes some major changes requiring Plugged In to move to a new location. Their current location is very accessible and gives a feeling of

convenience, as it is located on a bus line and provides safe, visible access and parking. A new business development project will begin in fall 1999 covering several blocks surrounding Plugged In. Once they find a new location (and a means to pay for the move and lease), staff plan to launch another publicity campaign to announce to the community that the same Plugged In has simply moved to a new location.

Training. Training was provided through the grant in a number of ways for different groups of users. Community agencies were trained at their locations to use the equipment placed by Plugged In; classes were provided at the Plugged In access center; and highly technical training was provided to the teens of Plugged In Enterprises. In addition, expanded hours at the drop-in center also included staff hours to assist users.

Most of the epa.net coordinator's time was spent taking Plugged In offsite and working with the community agencies. The intent of providing the access and training to agencies was to expand their technology skills in order to transition to using the technology to address particular issues and problems the agencies face daily. To this end, volunteer mentors also assisted agencies with integrating technology into the tasks agencies already did. Staff and several volunteer mentors assisted over 25 agencies, schools, and city offices with technical support, general use of computers, training for software packages, setting up e-mail accounts and lists, and designing databases to track their clients. Workshops were also provided on how to navigate the Internet. As agencies became more sophisticated in their technology use and integration, more advanced training was provided. Agency needs during and after the grant period were, in order of priority, assistance in researching funding opportunities on the Internet and writing grant proposals, developing databases, and sending and receiving e-mail. Training at the agencies was often one on one or small groups at the beginning. Later, they used a train-the-trainer system with the intent of building capacity at each agency and lessening the demands on Plugged In staff. Agencies were very enthusiastic about the support Plugged In was providing, and Plugged In did not have enough resources to provide what agencies wanted and needed. Training directly to community agencies ceased with the end of the grant period.

Prior to the grant period, formal, onsite classes were offered only to partner agencies or on an as-requested basis. Under the grant, Plugged In expanded its class offerings to the

community at-large and at no cost. Community members of all ages and agency staff participated in classes. Plugged In offered Introduction to Computers (weekly for 6 weeks); Computer Applications, including word processing, desktop publishing, spreadsheets, etc. (weekly for 4 weeks, with applications rotating each month); Introduction to the Internet (weekly); and HTML/Web Page Design (weekly). Formal courses were no longer offered after the grant period, except where supported entirely by other agencies.

Training for children was also expanded under the grant. Throughout the grant period, an average of 14 children's classes were offered weekly in conjunction with partner agencies. Topics were similar but geared toward children's interests and were more team-oriented. After the grant period, children's classes were repositioned as part of the Community Kids after-school program. Although no longer through formal classes, many of the topics were covered through other activities. In the coming year, Plugged In is planning to again reposition the children's program and offer more formal computer training.

As part of the development of the epa.net website, teens developed computer skills through an average of seven classes per week. In addition to general computer and applications classes, teens learned to design web pages, develop an online teen forum, and manage systems and networks. These courses eventually evolved into the Plugged In Enterprises training system.

The federally funded Youth Employment Program also supported 18 community teens' participation in an 8-week job training/technical camp. Many of these teens transitioned into Plugged In Enterprises, and one is now Plugged In's systems administrator. While not directly funded by the TIIAP grant, the classes used equipment funded by TIIAP, and ultimately benefited Plugged In Enterprises' early work.

Finally, informal training was provided to users of the drop-in center. Users have a wide range of questions about technical problems such as help with searching the Internet, adjusting margins in a Word document, using a resume software package, designing a web page, setting up e-mail accounts, scanning photographs, and faxing documents. Staff also provide assistance with content issues, such as how to write a cover letter and what items should go in a resume, what information should be in an event flyer, and the translation of computer terms into

Spanish. The center rules state that staff are happy to help point people in the right direction but will not do people's work for them and will not provide one-on-one training beyond the standard orientation. This informal training has continued beyond the grant period.

Protecting Privacy. System security is accomplished on several levels. Because users do not have Plugged In e-mail accounts, but rather Internet-based accounts, their messages do not reside on Plugged In's server. Users are asked to save their documents and other items on a diskette or create a folder on Plugged In's file server, rather than on a machine's hard drive. Users can then access the document from any Plugged In machine. Administration and management documents are also stored on the file server but are password protected. Users who save items to a hard drive risk the document being deleted by another user or through regular system clean-ups.

Users are not permitted to install their own software on any of the machines. They can request additional specialty software, such as the small business bookkeeping system recently acquired, on the drop-in center sign-in sheet. However, all decisions are made by the systems administrator based on need and funding. Much of this software is provided through solicited donations from manufacturers.

All of the machines are installed with software that prohibits accessing sites that are harmful to children. Moreover, access to the Internet is provided with the understanding that users are not to view anything that is inappropriate or demeaning. While this is unwritten, staff believe that the policy works. Center regulations ask that users "don't do anything on the computer that you wouldn't do if your mother was sitting next to you." The rules also stipulate that Internet chat is not allowed during the week.

C. Evaluation and Dissemination

Evaluation

During the Grant Period. The basic evaluation approach during the grant period was to define specific implementation objectives for each aspect of the project and identify when they would be completed or met. The project tracked equipment additions and upgrades, expansion of hours of operation, usage of the drop-in center, the number of and enrollment in classes, and the number of community agencies brought online and providing public access. If these objectives were met and aspects of the project implemented, they were evaluated as successful by project management and the Project Advisory Council.

Through the grant period, these methods changed somewhat, although the overarching approach is still largely an evaluation of the extent to which a given activity has been successfully implemented. Users still sign in at the front desk and, if they are not members, pay a dollar. There is no collection of data on how long users stay or what they are doing on the computers. Since teens are allowed to use the center only for homework in the afternoon, it is expected that they are using word processing or the Internet for school-related research. While this regulation has limited the range of uses, the data are not being used in assessing use trends. Also, when leaving the drop-in center, users can complete a small (literally, about the size of a business card) customer satisfaction survey. The survey asks users to rate (1) how helpful and friendly the staff are, (2) how comfortable the working environment is, and (3) how productive their work session was. Anyone who uses the center can complete a survey, regardless of whether they are first-time users or have completed a survey previously. The results show a satisfaction rate of 75 to 80 percent. Staff believe that some of the dissatisfied customers are teens whose behavior is regulated aggressively.

After the Grant Period. After the grant period ended and when staff began developing formal annual business plans, they began thinking about tighter evaluations and documenting annual expected outcomes. One respondent described the evaluations as “more focused bean-counting than before.” Under the new plans, the revenue generated by Plugged In Enterprises will be an indicator of success. They are also planning an online survey and log-in system at the drop-in center.

In its annual reports and strategic plans, the project documents usage statistics, such as the number of individuals and agencies that have benefited from each of the programs. The reports also tell the stories of individuals who have used the drop-in center in interesting ways and how teens have experienced personal growth through Plugged In Enterprises.

The executive director indicated that the evaluation of the latest set of program changes is just beginning to get underway. Staff have completed some steps, such as a usage audit, which has generated useful information; they learned what times of day the drop-in center is least busy (9 to 10 a.m.), and so they tell users who come by when it is very busy that they might come back in the morning. Staff expect that the usage audit, when analyzed completely, will help them make changes in how they market the center and how to manage the community of people who use it.

The change in evaluation was the result of greater pressure to produce and serve, an accountability that has recently hit many nonprofits. Project staff feel that this pressure is especially strong amidst a product- and outcome-driven corporate environment such as Silicon Valley's.

Evaluation Issues. Several staff members stressed the difficulty in evaluating a project like Plugged In. One likened it to evaluating a library and its services: how many people use it and are the resources they want available? Another commented that people would not come back, especially to invest a dollar and their time, if they were not getting what they needed, and that is enough for evaluation.

Staff believe that measuring outcomes beyond counting heads and capturing stories of users is difficult and methodologically tenuous. Counting people who got jobs, improved test scores, or went to college as a result of involvement is not only difficult to do, but impossible to attribute to any one program. Staff are comfortable telling the stories of frequent users, how they use Plugged In's services, and quoting the users' views of impacts, but they are unwilling to boast of achievements and make claims of impact that are difficult to substantiate.

While staff acknowledge that formal evaluation provides a better feedback loop for program changes, it is only secondary to good staff members' observation and implementation of solutions to the problems they see. Also, they see formal evaluation as having too slow a turnaround time. The personal relationships the staff develop with users and networking in the community allow for day-to-day evaluations, which are difficult to characterize by any methodology or approach.

In some ways, Plugged In's evaluation issues mirror those of its management issues. Plugged In started in a very entrepreneurial, dynamic way trying to implement many ideas with less concern about how to institutionalize and manage them. Later, the concern was precisely to institutionalize the successful ideas into longer-term programs. Similarly, the initial evaluation methods were designed to determine whether ideas were implemented, and only later have they begun to transition to measuring the longer-term impacts and using evaluation data to improve the programs.

Plugged In's staff seem to struggle with the issue of evaluation and the tension between intuitively knowing what works and having to provide information to funders and other external agencies. While project staff resist formal evaluations because they are time-consuming, they see it as a challenge for demonstrating accountability in the future.

Dissemination

Plugged In staff have presented at a number of conferences and sat on various panels throughout the grant period and after. They have found that business schools, including Harvard and Wharton, more often invite Plugged In than do education schools (although one volunteer, a Stanford School of Education graduate student, is planning to write her dissertation on Plugged In). They attend and present at corporate conferences, for example, at Apple Computers, and at nonprofit events, for example, at Stanford's Haas Center for Public Service. The presentations typically consist of showing the audience the kinds of things the project does and how it has learned to do them best. Plugged In Enterprises teens have also traveled to Washington, DC, and Atlanta, in addition to numerous local school visits, to talk about their program and to teach other teens about the Internet. In addition, Plugged In has been featured in

numerous newspaper articles, most often in the *San Jose Mercury News*, Silicon Valley's main newspaper. Staff have not yet published in any professional journals because they feel their type of work is only beginning to be an important issue for academics. However, Plugged In Enterprises was featured as a creative solution for closing the "digital divide" in *Growing Up Digital*, a guide for parents, teachers, and policymakers by Don Tapscott. Finally, one of Plugged In's funders, the Morino Institute, supported the production of a glossy brochure that briefly tells the stories of a handful of users.

Dissemination, like evaluation in some ways, has different purposes internally and externally. Plugged In staff have seen how talking about their work has led to more funding on many occasions. They have learned the value of marketing the project and how to tell their story to their advantage. However, what comes with creating a buzz is others interested in knowing more.

Plugged In attracts about 75 visitors a year interested in replicating the program elsewhere, and staff lead three or four tours a week for their funders and funders interested in seeding similar projects. Visitors range from Silicon Valley venture capitalists to Japanese urban planners. While staff appreciate the recognition the program has gained, these visits create a tremendous burden. Accordingly, Plugged In has put much of its project documentation on its website and advertises it as a Toolkit, designed to provide technical assistance for others interested in starting computing programs in their communities. The Toolkit contains business plans, strategic plans, frequently asked questions, sample lesson plans for computing courses, sample grant proposals, links to CTCNet and the U.S. Department of Housing and Urban Development's (HUD's) Neighborhood Network resources, and links to information on telecommunications policy issues. The documentation also includes considerations and tips for using technical volunteers and choosing equipment and data structures. Some of the materials posted are very informal, with the intent of showing how the Plugged In strategic planning works. For example, staff posted bulleted lists of brainstorming exercises on what the center will look like in 2 years, why it will be important when computers can be purchased cheaply, and lessons they have learned and need to remember. They have outlined some guiding principles for community computing and ways individuals and companies can support community computing. In this way, the resources and materials are helpful for a broad audience. Plugged In staff indicate that the

Toolkit has been useful to them as a source to refer interested individuals and organizations and serves as their main method of dissemination.

D. Problems Encountered

Plugged In had very few problems with start-up and through most of the grant period. During the grant period, the program had no problems with the technologies employed, partners and support, financial resources or time, or reaching and retaining end users. The only problems during the grant period centered on personnel.

Planning and Administrative

Insufficient Staff. While the epa.net project was designed to work at the Plugged In location and at each of the partners' locations, project staff found that there were not enough staff to effectively carry out a decentralized project. The epa.net coordinator was the only staff member assigned wholly to the project, and he did not have enough time to work with all of the agencies to the extent intended. Consequently, Plugged In was forced to cut back the individual work with the agencies toward the end of the grant period.

Managing Volunteers. Plugged In had trouble managing the expectations of the community agencies and the volunteers. In hindsight, project staff realize they needed a volunteer coordinator and that the epa.net coordinator did not have time to work with the agencies and the volunteers. Obtaining volunteers through an e-mail newsletter and through funder solicitations was easy, but determining what activities best fit their skills and work habits was difficult. Many also needed guidance in working with the community agencies and addressing their particular needs. After beginning with individual mentors for each agency, Plugged In changed its approach to having teams with a variety of skills work with the agencies. Teams allowed more flexibility in scheduling; since most volunteers come from professional jobs in Silicon Valley corporations or other areas outside the community, they were not able to volunteer during normal operating hours. The project also developed a volunteer orientation that addressed issues of community sensitivity and awareness. Staff downplayed preconceived notions of "saving the community" and presented scenarios where volunteers often make promises and do not follow through with them. Volunteers

were asked to commit 2 to 4 hours per week, and to be flexible in the kinds of assistance they were asked to provide.

Accommodating Visitors. As described above, Plugged In has about 75 visitors per year and numerous telephone and e-mail inquiries from people and other projects or communities interested in learning more about its operations. This far exceeds staff time available to assist each visitor and inquirer. In order to manage project information dissemination and provide at least some technical assistance, many of Plugged In's operating and management documents are available in the Toolkit section of its website.

Reaching the Spanish Community. Staff feel that they have fallen short in working in the Spanish community. They attribute this to a lack of capacity to meet all the needs of Spanish language users. While the project has one computer programmed in Spanish, system support is difficult when the systems staff do not read Spanish. Moreover, staff have found that there is not enough interesting local content in Spanish on the Internet to draw users.

Sustaining Project Beyond the TIIAP Grant Period

Maintaining Partnerships. Providing formal classes for partners was difficult to sustain because one staff member could serve only two agencies effectively. Staff also found it difficult to intertwine their curriculum with the goals of each agency and no longer had the capacity to design specialized courses for each agency. As a result, classes and technical assistance are provided to community agencies and their customers informally or, if formally, not with the same frequency.

Sustaining the Children's Program. Plugged In's Children's Program has existed in several incarnations over time. Unlike the drop-in center and Plugged In Enterprises, which have also undergone several changes, the Children's Program has yet to define itself in a stable, sustainable way because it does not fit in the business model that Plugged In is seeking. A new format was under development at the time of the site visit and will begin in fall 1999 (see Section E – Sustainability and Project Expansion).

E. Sustainability and Project Expansion

Strategies Used to Fund Project Activities Beyond the Grant Period

Plugged In staff indicated that they did not seriously address sustainability until it was a problem. While they felt that the TIIAP program tried to force projects to think about it, Plugged In staff simply did not get around to considering sustainability. However, the end of TIIAP funding forced them to face a number of issues that reach the core of nonprofits: soft money, technology, and community development.

In January 1997, 4 months before the end of the TIIAP grant period, Plugged In began undergoing yet another big change. The teen online show, Plug In! (formerly StreetNet), was about to be launched on America Online, which was going to expand Plugged In to a national audience. Staff saw the opportunity to make money through advertising. The executive director at the time brought in a new development director and some consultants to focus on Plugged In as a revenue generator, with the intent of expanding Plugged In's already $1 million operation. This created some chaos about Plugged In's mission: was it a national show or a neighborhood program? Without a clear direction, everyone had new ideas and much energy. It was an exciting time for project staff because they had the wherewithal to implement a variety of projects and expand existing ones.

Cutting Costs. That summer, however, TIIAP funding ended, AOL was mired in its own financial troubles and cut its funding for Plug In!, and several of the major funders had bad quarters—all of which contributed to a financial crisis at Plugged In. At the same time, Plugged In was unable to curtail its expenses as quickly as staff would have liked. In response, the organization cut salaries for 3 months (to avoid any immediate layoffs) and maintained limited partnerships without proactively cutting or expanding any. During the following fall, Plugged In was able to go back to its previous spending levels with new funding from another online show through Intel, but after 3 months Plugged In had to back out because the project was more technically sophisticated than staff could manage.

When TIIAP funding ended, staff were forced to terminate Plugged In's formal technical support to the community agencies. Staff admit that it was a somewhat arbitrary decision to end it at the time, but, in retrospect, it was the right thing to do. While it was something they had to do for financial reasons, the decision was in line with Plugged In's entrepreneurial and business philosophies. Project staff saw their work with these agencies as seeding the agencies' early technological development, but felt that the partnerships were not sustainable if the agencies could not take an active role in their own technology development. If the community agencies were to sustain themselves without Plugged In's assistance, staff felt, they would find ways to do what they want to do if they are invested in the process. Now, some of the agencies have further developed their own labs; others use Plugged In's lab at their own expense.

When the development director became co-executive director in December 1997, Plugged In began addressing management in a new way. Prior to that (and rightly so, the director indicated), entrepreneurship was the focus. But from a management point of view, there were too many small projects working either at cross purposes or toward the same goal. It was unclear what was a short-term project with a short-term partner and what was long term. The next move was to cut middle management (some layoffs and some resignations); with only three major programs, the organization did not need both a program director and an executive director. Next, the online show Plug In! spun off its own organization, Open Voice, which still works with Plugged In. Plug In!/Open Voice was happy to separate because its staff agreed that they were working in a different line of business than Plugged In.

Generating Ongoing Revenue. While Plugged In Enterprises earns more revenue than the other programs, it does not contribute to Plugged In's management or the drop-in center and children's program. Accordingly, after the grant period ended, the drop-in center implemented a fee structure. Users could become members of the center on a monthly basis. Membership fees are $15 per month or 4 hours of volunteer time. Volunteers can help users in the center or assist with administrative work for Plugged In. Membership currently ranges from 10 to 20 per month. If they are not members, users pay $1 per day for access to the computers. Some users who can afford to do so have opted to pay the $1 fee even though they use the center more than 15 days per month because they like giving more money to the organization. The center also charges for photocopy and fax use at cost.

Much of Plugged In's revenues come from corporations, foundations, and individuals (about a third from each) in the form of grants and donations, most of which are year to year, creating difficulty in planning. About 6 individuals give $25,000 and up, 6 give around $10,000, 10 give $5,000, and about 100 give $500 or less. However, Plugged In is likely in a unique situation because the project exists in a region whose residents are not afraid to invest money and take risks. Staff have found that people invest in practical solutions to identified problems and are particularly enthusiastic about technology solutions. Plugged In has become very adept at marketing itself. The staff have learned how to educate others about themselves and their work. Another aspect about the "digital divide" they have discovered is a cyclical problem where typically those underserved technologically do not have the capacity to spin and hype their projects, thereby falling behind in fundraising and infrastructure build-up.

In bringing in revenue, Plugged In faces a challenge of audience. As a community-based nonprofit, the project can appeal to community activists and foundations. And as a technology center, it appeals to technophiles. Ironically, the appeals Plugged In makes are just the opposite. Staff have learned that they cannot hype the technology too much to the technology people, but they can focus on the community aspects as a way for the technology companies to expand the reach of their work. Similarly, with the community activists and foundations, they stress the technology. While this dual system appears to work, it does create additional development work.

Fundraising is done as an organization; that is, Plugged In as a whole, rather than the three individual programs, raises money. However, the type of grants applied for often limit what the project can fund. For example, a grant for teen businesses can fund only Plugged In Enterprises and not the drop-in center. Staff have found that Plugged In Enterprises is the easiest program for which to generate outside funding, with the children's program next. The drop-in center, however, fits in a niche peculiar to nonprofits and technology funding. According to Plugged In staff, one general strategy of nonprofits is to get grants, use them, and ask for money again. But funders like funding new projects, not supporting existing ones, even if they are good. Whereas nonprofits, such as Plugged In, try to *sustain* their existing projects, funders want *expansions*. They believe that for-profit organizations are inherently stable because they are

revenue generators for venture capitalists, and funders have a clear accountability measure in the profitability and an exit strategy: selling. But nonprofits like Plugged In have inherently different revenue models. Funding from foundations is generally based on need, not success. If a project demonstrates need and success, funding continues. But success alone makes obtaining funding difficult. The drop-in center, a good existing project, does not generate profits or support itself. So it is a money drain for Plugged In's funders. This is compounded by the fact that in Silicon Valley, access to computers is often taken for granted and is not considered creative. The technology is not terribly sophisticated and the users are not using it in sophisticated ways, so it is not interesting to many funders.

While there is a lot of money available in Silicon Valley, Plugged In staff realized that they must retool their programs to fit what is being offered. The executive director's emerging plan for the drop-in center is to reposition it as a production studio where users create resumes, web pages, or documents for their businesses. Another plan is to merge epa.net (which currently is separated from Plugged In) and Community Central, the section on Plugged In's website that provides community information very similar to epa.net's. The new website would be run as an online show similar to Plug In!/Open Voice. The interactive format where visitors create the content is perceived to be sexier, and therefore more fundable.

Project Expansions

Plugged In Enterprises. Plugged In's most significant expansion was the development of a teen-run web design business, Plugged In Enterprises (PIE). The initial epa.net website and StreetNet online show website were designed and developed by a group of teens learning web design at Plugged In. This work evolved during the grant period to the idea of creating a teen-run business. PIE was seen as a way to employ teens already developing products for Plugged In, give the teens critical job skills and experience, and generate revenue for the organization. It began with three programs: web design, desktop publishing, and multimedia. When only the web design strand was able to generate revenue, all three were folded into one. The desktop publishing area did not find enough demand for its services, and multimedia production time was too long and could not cover the salaries.

PIE's first contract was to update the epa.net website and the StreetNet web pages. During this first year, Plugged In was most concerned with developing structures for running the business, including recruiting and retaining teens, pay scales and hours, training mechanisms, and ways to keep clients satisfied. Initially, the number of teens fluctuated, and so PIE established a clearer progression to becoming and staying involved. The PIE manager started with a background of working with teens and running a business and needed to merge the two.

The second year began full implementation of PIE. Involvement begins with a 10-week training session offered quarterly, which teaches students the web design and computer systems skills they need to join PIE. Those who complete the course are hired for a 1-month internship, which provides an opportunity for students to see if they can balance PIE with schoolwork, if they can work to deadlines, and if they are mature enough to accept constructive criticism. During the internship, the teens have weekly evaluations and must rate satisfactory or above. If the internship is mutually beneficial, the teen is hired as a PIE staff member. Nine members work from 4 to 7:30 p.m., Monday, Tuesday, and Thursday. On Wednesdays they receive advanced training from Silicon Valley professionals and experts, at no cost to Plugged In. And on Fridays they participate in job shadowing or other educational field trips.

PIE bills out at $125 per hour and brings in at least $2,000 per month. The program is now charging at the lower end of standard industry rates, whereas early it was charging half of what adult professionals do; staff found that the teens can do an equally good job and can be competitive. The largest contract was $28,000. The revenue supports the teens' hourly salaries (for working as well as training and field trip days, which explains the discrepancy between the billing rate and wage rates) and some equipment. Wages start at minimum wage ($5.75); however, members can earn $7.75 if they learn two new applications and apply them to PIE business and $9.75 if they learn two additional applications. Wages also increase through a point system. Teens earn points by taking leadership roles, like facilitating meetings and teaching others new skills and applications. Getting leads that turn into clients, receiving letters of recommendation, and meeting deadlines also generate points. Teens who are under 14 years of age and cannot earn wages are rewarded with equipment, such as a Palm Pilot, or free lunches. The teens receive formal quarterly evaluations, as well as ongoing, informal evaluations.

PIE currently has more offers for work than it can accommodate. Most of its work is developing and designing websites; the only client for which it maintains a site is a telephone company. With smaller organizations, it trains the staff to update the site themselves.

Community Kids. Under the grant, Plugged In provided a series of computer classes for elementary-age children who were participating in activities through several community agencies and drop-in time for these children. When the grant ended, Community Kids was basically a drop-in program where children could use educational software and engage in short, team-based multimedia projects. The drop-in program was run through the computer lab, and staff found that not only was it hard to manage the program amidst adult customers but that was not a constructive environment for children. At the same time, Expressions of Soul, a program leasing space from Plugged In, was providing after-school visual arts activities. Because the program was difficult to manage, Plugged In was looking for an agency to take over after-school activities. Rather than completely phasing out the children's program, Plugged In merged it with Expressions of Soul to provide integrated technology and arts programming. This allows Plugged In to continue serving younger children in the community.

An average of 25 children come to the free drop-in program every day to complete art projects, use educational software, and participate in digital art activities, including graphic design and desktop publishing. Literacy activities were created by volunteers from the Stanford School of Education. Tutoring assistance is also provided to elementary children by Silicon Valley volunteers on Thursday evenings. A group of middle-school-age children is creating a magazine about issues affecting EPA.

During the summer of 1999, Plugged In will be redesigning the children's program. Staff of both Community Kids and Expressions of Soul admit that their agendas do not meld well enough. Some staff are not sure that the art and technology connection has been made, and the program clearly is not as developed as the access center or PIE. Scheduled to launch in the fall, the new program, Plugged In Greenhouse, will be designed to motivate kids to use technology in interesting ways. Current plans are to organize the program in a product development environment focusing on four areas: art, the environment, storytelling, and cultures of the world. Participating

children would create one web page per quarter. Children will enroll in the program, rather than just dropping in, and some type of parent involvement is planned.

F. Project Outcomes

Impact on End Users

End users of Plugged In's activities cover a wide range of groups; they include visitors to the drop-in center, teens employed by PIE, community agencies that received technical support from Plugged In, and children participating in the Community Kids program.

Visitors to the Drop-in Center. Plugged In's main original goal was to provide access to community members. The expanded hours of operation and increase in equipment supported by the TIIAP grant have dramatically improved access to the information infrastructure for East Palo Alto residents. The classes offered during the grant period improved the skills of an estimated 92 adults, 49 teens, and 132 children. Also, 56 drop-in customers (likely with some duplication) received informal training. Aside from training and learning important technology skills, children and teens found a place to do their homework and print papers for school. Adults were able to keep books for their small businesses, create resumes and apply for jobs in industries they have researched on the Internet, and communicate with friends and family. Customers could get assistance from skilled and motivated staff who could help with most anything they needed. The epa.net website provided centrally located community information and referral services not previously available. Visitors to the center also had access to a number of Kinko's-type resources not available elsewhere in the community.

Significantly, Plugged In provided a place where community residents could walk by, see others using computers, and know that they, too, can use computers. By creating a location for shared learning experiences and where people teach each other, Plugged In built community confidence and competence. People were exposed to technology as a useful tool in a creative and safe environment.

One respondent commented that Plugged In provides the perfect mix of what the community needs in terms of technology and other office-related items. Plugged In, he said,

generates and encourages the intelligence and talent of local kids and future managers. Moreover, community members cannot keep up with changing technology on their own, but Plugged In can do it for them. He hopes that, in the future, people will look to EPA for high-level intellectual resources.

On the day of the site visit, two community members were visiting the drop-in center for very different purposes. One man communicates with his family in Peru via e-mail and has created a family web page with scanned photographs and a digital camera. Speaking only a little English, he is able to find information he needs in Spanish and to read Peruvian newspapers. He does not know of anywhere else he can use a computer. Another man runs several federal-grant-funded agricultural research projects through Plugged In. He is researching what plants are native to the area and would be best suited to restoring wild areas and national forests through revegetation. He has been using Plugged In's computers for 2 years, visiting almost daily, and has created 138 web pages on his projects. Without the access available at Plugged In, he would have to rent or buy a high-powered computer, printer, and Internet access.

Teens Employed by Plugged In Enterprises (PIE). Perhaps the greatest impacts are those for the teens employed as web designers by PIE. While only a small group are employed currently, many have completed the 10-week training course and learned critical skills for their future. But the teens who have been on the PIE staff have learned far more than the technical skills needed in designing web pages.

On the technical side, the teens are given the opportunity to apply their skills and see the benefits; while many kids can play around with web pages and have learned to create intricate designs, few actually have the opportunity to use these skills in a productive and fulfilling way. Through the PIE training they are learning and using HTML and scripting, which opens doors that they would not have otherwise had. Several of the teens are now thinking of computer science as a future college major. PIE is currently developing a relationship with Foothill College and investigating opportunities for getting college credit for the training program. Several of the teens have been invited to attend advanced technical training for webmasters and Java scripting, at no cost to them or PIE.

Aside from technical skills, the PIE teens are experiencing personal growth. PIE began as a social enterprise, and while it is now thought of more as a business that invests in teens more than other businesses, the social aspects are still paramount. The 13- to 17-year-olds have probably acquired more social and job skills than most teens their ages. They facilitate client meetings in a very professional manner and work with a diverse group of clients, including Silicon Valley executives and local community agency staff. They learn time management to meet deadlines and receive memos with constructive criticism (upon receiving their first memo, most think they are in trouble). They learn about marketing their business and public speaking at conferences and trade shows. They develop entrepreneurial skills and decide as a group the direction in which they want the business to go. The more senior staff mentor the newer staff, and all take ownership of what they do. Through their interactions with clients, job shadowing, and additional training, the teens are beginning a lifelong process of networking and selling themselves, something very few 15-year-olds have the opportunity to do.

The lead graphic designer for PIE started as a graffiti artist. Before he started at PIE, he felt that he was limited in his options of what he could do with his art. But through PIE, he has been able to show his art, through web pages, all over the world and has networked artistically with others. The graphic work has given him skills in creating something from a vague idea, as well as the ability to control his creativity to assist others. Moreover, he has learned how to communicate with people, how to shake hands, and how to have a job.

In the spring of 1999, PIE graduates its first three teens. One will be attending college, another will attend junior college and work in the computer industry, and one will either attend junior college or work in a teen leadership program such as Public Allies or City Year. While PIE does not have any plans for its graduates, it does teach goal-setting skills and gives the teens a better idea of what their options are than life on the streets in EPA would have. In fact, the PIE manager noted that many of the teens are very aware of the extraordinary opportunities they have had, and several have expressed an interest in reinvesting and giving back to their community. Some have talked about starting a nonprofit so that other teens can have the same opportunities.

Community Agencies That Received Technical Support. When Plugged In started, no agencies in the community had access to e-mail. After a year, agency staff were handing out business cards with e-mail addresses at meetings. While staff acknowledge that Plugged In rode the technology wave and are hesitant to attribute all changes to Plugged In, they know that the grant allowed the technology to get into the hands of the agencies. Many of the agencies did not have Windows 95 or any skills to use electronic resources. Plugged In gave them access to more funding opportunities and the ability to communicate with other agencies inside and outside the community that are working with the same issues.

Children Participating in the Community Kids Program. The 25 or so children who attend the program daily benefit in several ways. It provides them somewhere constructive to go after school, and at no cost to their parents. They have access to technology that they do not have at school, technology that is available to many private school children with whom they will later compete. They are able to use a number of programs and applications and are proficient in some very sophisticated software. Significantly, they gain confidence in using technologies that relatively few adults in their community can use. Also, the program creates a community within the community; the children attend eight different elementary schools and represent a variety of ethnicities. While these differences created some early struggles in the center, the staff and children feel that they have conquered those problems and have learned from them.

Impact on Other Beneficiaries

Silicon Valley Corporations, Executives, and Residents. Plugged In has educated people in the area outside of EPA, too. Residents in the region have a better understanding of how EPA is falling short in technology and telecommunications, but, more importantly, they have a vehicle to get involved. Plugged In provides them a good investment in something they already understand: technology. Moreover, the executive director believes that after making donations or grants to Plugged In, the corporations are more apt to donate to other low-income communities and projects.

Businesses Using PIE Services. PIE's clients have the opportunity to help teens and get high-quality websites at the same time. Staff attribute much of their business to clients'

satisfaction and feeling good about giving their business to an organization that reaps benefits far beyond its profits. Consequently, the clients get more than just a good product.

Impact on Grant Recipient and Project Partners

Several of Plugged In's staff come from EPA and have become employees because of their involvement in Plugged In classes, PIE, or use of the drop-in center. The systems administrator started visiting the drop-in center to play computer games as a freshman in high school in 1995. Then, as a participant in the Federal Youth Employment Program, he worked at the computer center Plugged In ran at the Boys and Girls Club, helping with classes and technology-based art projects. He then took a webmaster position at Plugged In, learned basic web design, and worked on Plugged In's home page for minimum wage. He worked on the early PIE staff and created web pages for other organizations and at the drop-in center, providing assistance to customers. When Plugged In's systems administrator announced she was leaving, he asked about the position and learned from her all the computer maintenance skills he would need. With no formal training, he now has a full-time, salaried position. If he were not at Plugged In, he suspects he might be working at a fast-food restaurant or not even working, and would only be interested in computers to plays games, as are most of his friends. He likes working with computers because of the ongoing learning it allows him, as well as the opportunity to recognize and fix problems others have never even heard of. He is currently working with the telephone company to complete Plugged In's Digital Subscriber Line connection and will soon work on moving much of Plugged In's data onto a new, offsite server. He recognizes the extraordinary job experience he has had and hopes some day to take his skills to a corporate environment.

Another staff member of the drop-in program left a previous job in order to gain flexibility to attend the University of California, Berkeley. Although, he began with minimal computer skills, he now assists customers with anything from formatting disks to dynamic HTML programming. He also provides an important Spanish language resource to many non-English-speaking customers. Through the TIIAP project he was given the opportunity to travel to Washington, DC, with the executive director to represent Plugged In at TIIAP's 1997 conference. If he were not at Plugged In, he indicated he might be working in a store or attending a technical school like some of his friends. He commented on the many challenges to learning he and his friends face, namely confidence, but that working at Plugged In, he learns every day. He hopes to earn a master's degree and maybe teach at a community college some day.

Two separate organizations emerged from Plugged In's work on the TIIAP grant. The StreetNet/Plug In! project was spun off into Open Voice. Open Voice is a group of teen journalists who write stories, opinion pieces, and surveys and facilitate chat rooms and bulletin boards. PIE created the architecture, look and feel, and the code behind the web pages and surveys, but Open Voice does its own updating. Plugged In is no longer involved in the administration or management of Open Voice, other than renting office space to the group.

The epa.net coordinator left Plugged In to start his own business, Izora Creative Solutions, providing education, technology, and project management consulting to nonprofits and other businesses. At the time of the site visit, he was providing assistance to a project of IBM and the United Way's Teen Technology Partnership, working with 45 agencies in the Bay Area to integrate technology into their organizations and activities. He still manages the epa.net website and has plans to expand it. He also continues to provide some free consulting services to community agencies.

Replication

Plugged In is frequently approached by other organizations looking to replicate its operation. To this end, the program has placed many of its organizing documents in the Toolkit section of its website. The intent of the documents is to provide general assistance and advice that another organization could use to start its own technology center. However, some organizations seem to be viewing Plugged In as a type of organization, rather than a particular organization; for example, during the site visit, the executive director received an e-mail message from a program in Geneva, Switzerland, that was developing a technology center and was going to call it Plugged In. Other organizations have also expressed an interest in starting their own Plugged Ins. This creates some serious quality control issues for Plugged In, which really has no control over which other organizations replicate its programs and how they run them.

Staff suspect that there are many projects around the country, and now the world, replicating Plugged In's work, whether they are aware of it or not. They do not systematically track these projects or follow up with their many visitors. However, they frequently receive e-mail messages or notes from community projects sharing their successes.

Franchising. Several funders and a California State Assemblyman have approached Plugged In about franchising its operations, and Plugged In has felt tremendous pressure to expand into other communities. Franchising represents a slightly different issue than replicating organizations because Plugged In would have some control over how it is replicated. While the idea is still in the planning stages, Plugged In staff are seriously considering it and exploring some of their major concerns. From a business point of view, in order to franchise its operation, Plugged In needs to codify its systems and infrastructure and stabilize some of its programs. This includes documenting its structures and creating manuals for how it trains people, for example. While the Toolkit on the website addresses some of these issues, it was designed more for other organizations and does not represent all of Plugged In's operating procedures.

On a more philosophical level, staff must decide what others would have to incorporate into their businesses in order to be a Plugged In operation. The staff are concerned about maintaining the integrity that comes from the program's name and brand. What expectations are there that others must meet? Also, what does it mean for Plugged In in EPA to have other organizations with the same name? Plugged In would have to establish an upper level organizing body to manage local Plugged Ins. The organization does not currently have the capacity to run both its daily operations and manage others'.

Moreover, staff are concerned that if Plugged In becomes a national office, they will lose connections to the local community and the focus on community members and their needs. Furthermore, there is a concern that franchising the organization would result in local skills being co-opted to the national level. A national organization might pre-empt the very mission of community centers and devalue the local staff, resulting in a loss of spirit for a staff that has put much energy into a local project.

With so many ideas flowing, as they have throughout Plugged In's history, the staff are wary of letting the project spin out of control. Unlike their early work, they are proceeding very cautiously and trying to slow the program's growth. However, this is becoming increasingly difficult with swelling pressure to expand upon their success.

G. Lessons Learned and Recommendations for Other Communities

The most notable aspect of Plugged In over the last 7 years is how many transitions it has undergone. Whether intentional or not, Plugged In basically tried out ideas because they sounded good, and the ones that worked have remained. An iterative development process that takes place over time keeps projects innovative, exciting, and creative. If a project is still doing the same thing 5 years after it started, it has not improved, especially if it has a technology focus. Many of the lessons Plugged In has learned since the beginning of its TIIAP grant were the result of this strategy, and the strategy helped the project implement lessons it learned to create a sustainable project.

Sustainable Projects Need Entrepreneurs and Business People. In order for this iterative development to work, Plugged In learned that start-up projects, to be sustainable, need entrepreneurs and business people. They think in profoundly different ways. The entrepreneurial founder commented that Plugged In could not have stuck to a plan, and, in fact, felt projects should be leery of plans in general. This was important to the establishment of Plugged In in the community. As one staff member noted, staff could not have written a business plan before they had a business, and without working by trial and error, they would not have learned what works for the business. The development director, and now executive director, took the entrepreneur's program and is repositioning it in as much a business model as a nonprofit can. She has facilitated annual business plans for Plugged In, which are critical to the organization's sustainability.

Both the current and previous executive directors described the type of staff members they have sought: information scavengers with profound curiosity, smart people who are passionate about what they do, people who care more about the community than the technology. During the grant period, all of the staff members assisted with most of the projects. As a team, they were flexible enough to work where work was needed. With a small, focused staff, Plugged In has been able to reinvent itself and its programs.

Teen and Adult End Users Benefit From Different Services. Plugged In has a number of different groups of end users. While it has not yet figured out how best to serve younger children, it believes it has found what it can do for the other groups. PIE, while not serving a large number of teens, has made a dramatic impact on a few. Also, PIE makes the most sense for funders because it shows a real learning environment with visible payoffs. For adults, the best way Plugged In has found to add value with the resources it has is to provide a copy center-type operation, where users can drop in and have access to a wide variety of technologies and applications.

Through PIE, Plugged In has learned the importance of being consistent and fair in working with teens. For example, PIE must be teen-run internally and externally. Occasionally, clients question having teenagers develop their websites, but the PIE coordinator explains that it is a teen-run business. Once the client sees that the teens are very professional and competent, they are taken seriously. Similarly, the teenage staff are treated as employees, and not cheap labor; they are given wage incentives and bonuses based on productivity, professional development, and leadership. They also are evaluated and must keep minimum standards at school, manage their time, and receive criticism.

Partnerships Should Be Defined and Goals of the Partnership Identified. Project staff believe that indefinite and open-ended partnerships are problematic. It is important to identify when goals have been met and the partnership is no longer useful to either organization. Because partner organizations' goals and missions are rarely an exact match, partnerships without clear objectives will result in forcing the assimilation of missions into one. This is detrimental to each partner. Partnerships with various embedded missions are compounded by fiscal problems. Partners that do not operate in a revenue model cannot continue to contribute to the partnership. The ending of partnerships should be a signal that knowledge, in this case technology, has been transferred and that a sustained system has been created. Plugged In staff cautioned that organizations should not exist in a "can't pay, can't play" environment, but that partnerships must be purposeful.

This is not to say that Plugged In did not benefit from its partnerships. To the contrary, staff believe they could not have completed the project without them. For example, early

in the StreetNet project, they had trouble maintaining a consistent group of teens to participate because of issues with transportation, sports, and other activities. Plugged In also lacked the staff time to monitor individual students' participation and progress. Through partnering with the Eastside College Prep Academy and the RISE mentoring and AVID academic enrichment programs, StreetNet teens were provided transportation and an adult to support them. This partnership supported Plugged In's belief that collaboration is a powerful tool for overcoming challenges and achieving common goals.

The Project's Scope Should Remain Flexible and Not Overambitious. The epa.net project was designed to work at the Plugged In location and at each of the partner's locations. They found that there were not enough staff to effectively carry out the decentralized project plan to work with all of the agencies to the extent they intended. With as small a staff as Plugged In's, and really only one person assigned to the agencies, they felt they could better serve the needs of the agencies with a centralized operation. This led to cutting back the individual work with the agencies. While staff still believe that providing individualized services to the agencies was critical to building up the technology culture in EPA, to do it again, they would at least have an assistant for the epa.net coordinator.

A Volunteer Coordinator Would Be Helpful in Managing Multiple Volunteers Working in Different Capacities. Because of the difficulty in managing volunteers from outside the community to work with Plugged In and the community agencies, Plugged In would have liked to have a volunteer coordinator. A coordinator would have been helpful in assigning activities or agencies to match particular volunteers' skills appropriately. Staff found it useful to provide an orientation session that addressed issues of community sensitivity and awareness.

An Online Catalog of Project Management and Strategic Planning Documents Is Helpful in Providing Technical Assistance to Other Projects. Plugged In attracts about 75 visitors a year interested in replicating the program elsewhere and leads three or four tours a week for its funders and funders interested in seeding other projects. While staff appreciate the recognition the program has gained, these visits create a tremendous burden. Accordingly, Plugged In has put much of its project documentation on its website and advertises it

as a Toolkit, designed to provide technical assistance for others interested in starting computing programs in their communities. The Toolkit contains business plans, strategic plans, frequently asked questions, sample lesson plans for computing courses, sample grant proposals, links to CTCNet and HUD's Neighborhood Network resources, and links to information on telecommunications policy issues. Staff have also included considerations and tips for using technical volunteers and choosing equipment and data structures. Some of the materials posted are very informal, with the intent of showing how the Plugged In strategic planning works. For example, staff posted bulleted lists of brainstorming exercises on what the center will look like in 2 years, why it will be important when computers can be purchased cheaply, and lessons they have learned and need to remember. They have outlined some guiding principles for community computing and ways individuals and companies can support community computing. In this way, the resources and materials are helpful for a broad audience. Plugged In staff indicate that the Toolkit has been useful to them as a source to refer interested individuals and organizations and serves as their main method of dissemination.

H. Summary and Conclusions

Plugged In, with the help of the TIIAP grant, has become a fixture in EPA. It represents an important voice in an underserved community by showing that technology is critical to both the development of young people and the continued growth of adults. As a drop-in center, it provides a place for students to complete homework tasks, for adults to manage their business and personal tasks, and for all to learn. The students working with PIE have achieved a remarkable level of experience in an industry where experience is critical to obtaining a job.

Plugged In represents a model of a sustainability strategy. Simply put, Plugged In found programs that the community of users and the community of funders like. Its strategy lies not in solidifying ongoing funding sources, not in securing staffing, not in ensuring enduring partnerships, and not even in proving measured success, although all of these are important to the project. Rather, staff have started many different projects, determined which work and which need work, improved the good ones, and reorganized those less successful. Throughout Plugged In's history, it has been very organic, and working in an iterative manner, the staff have been able

to respond to the needs of the community and other stakeholders. This flexibility and look toward the future for program development and design, the project has shown, is critical to sustainability.