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Community Technology Centers Program
Annual Performance Data

*Summary of Findings from Annual Performance
Reports of FY99 and FY00 Grantees*

Prepared for:

Office of Vocational and Adult Education
U.S. Department of Education
Prime Contract to MPR Associates: ED-99-CO-0160

Submitted by:

SRI International

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Center for Technology in Learning

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Contents

EXECUTIVE SUMMARY	i
BACKGROUND.....	1
Prior Research on Community Technology Centers.....	2
Objectives of the U.S. Department of Education’s CTC Program.....	3
METHODOLOGY	8
OVERVIEW: CTC COMMUNITIES AND PROGRAM AREAS.....	10
Types of Communities Served	10
Target Age Groups	11
Types of Program Objectives.....	11
Local Program Objectives in Year 2 of the CTC Program	14
IMPROVING ACCESS	16
Number of New and Enhanced Access Sites	17
Number of Computer Workstations, per Site.....	18
Level of Internet Connectivity, per Site	21
Median Number of Participants Served	21
Percentage of Sites in Underserved Communities	22
Progress on Improving Access.....	23
PROVIDING EDUCATIONAL SERVICES.....	24
Providing Extended Opportunities for School-Age Youth to Learn.....	25
Increasing Adult Opportunities with Technology-Supported Education Programs.....	26

Improving Basic Computer Literacy Skills.....	28
Increasing Job Opportunities.....	29
Progress on Improving Educational Service Delivery	30
DEVELOPING MODEL PROGRAMS	31
Programs That Involve Participants as Authors of Content.....	32
Programs That Demonstrate the Effectiveness of Technology-Supported Activities in Target Communities.....	33
Programs with Potential for Continuation and Replication	36
Importance of Community Partnerships	38
Progress in Developing Model Programs.....	40
MEETING CHALLENGES	42
CONCLUSIONS AND RECOMMENDATIONS	44
Summary of Findings	44
Toward Evidence-Based Program Design	45
Tailoring Programs to Participants and Their Communities	46
Benefits of Integrating Sites with Existing Services.....	47
Progress in Reporting Data for Program Accountability	48
Recommendations	49
REFERENCES	51
APPENDIX: ANNUAL PERFORMANCE REPORT TEMPLATE	A1

TABLES

Table 1. Recommended GPRA Indicators.....	5
Table 2. Grantees Reporting Data on the Recommended Indicators.....	6
Table 3. Grantees Targeting Age Groups.....	11
Table 4. New and Enhanced Technology Access Sites.....	18
Table 5. Levels of Computer Workstations.....	19
Table 6. Number of Workstations Reported.....	20
Table 7. Types of Internet Connections Reported by Grantees.....	21
Table 8. Number of Participants Served.....	22
Table 9. Median Number of Participants, by Type of Adult Educational Program.....	28
Table 10. Median Number of Participants, by Computer Literacy Content Area.....	29
Table 11. Grantees with Authoring Programs, by Program Type.....	33
Table 12. Grantee Partners, by Type of Partner Organization.....	39

FIGURES

Figure 1. Size of Population Centers Served by Sites.....	10
Figure 2. Program Objectives of Grantees.....	14
Figure 3. Grantees Reporting Program Data by Type.....	25
Figure 4. Grantees Reporting Extended Learning Opportunities, by Type of Learning Program.....	26
Figure 5. Grantees Reporting Adult Education Programs, by Type of Program Offering.....	27
Figure 6. Grantees Reporting on Program Outcomes, by Outcome Category.....	35
Figure 7. Grantees Reporting Types of Benefits from Partnerships.....	40

Executive Summary

The United States Department of Education's Community Technology Centers (CTC) program is an effort to bring technology access, and therefore new opportunities for learning and community participation, to Americans who otherwise would lack that access. The language authorizing the program in 1999 reflects three broad objectives: to provide access to computers and technology to adults and children in low-income communities who otherwise would lack that access; to support learning outcomes by providing educational programs and services to center participants; to develop model programs that demonstrate the educational effectiveness of technology.

This summary of findings, submitted by SRI International, is a report on annual performance data for the Community Technology Centers program. The report includes discussion of the progress toward these objectives through an analysis of annual performance reports (APRs) for Year 2 of the CTC program. APRs from grantees awarded in both FY99 and FY00 were included in the analysis. APRs were received from 114 of 132 awardees. Data from the reports were coded into a database before the analysis was conducted. The analysis for this findings summary is part of a broader evaluation of the CTC program that includes a set of case studies of best practice and the development of reporting tools to aid CTC Project Directors.

The CTC program in Year 2 continued to increase access to technology for underserved communities. Since the program's inception, 1999 and 2000 grantees have opened 332 new technology access sites and enhanced 180 existing sites. These sites were located in communities ranging from inner-city neighborhoods to rural communities, with almost half providing services in urban empowerment zones or enterprise communities. The primary participants at these sites were school-age children and adults; some sites directed programming at seniors or families. Basic computer literacy classes and open access times were the predominant program types, with two-thirds of grantees providing some kind of basic computer literacy class. Increasing educational attainment for children and adults was also a common program type: almost half of grantees provided educational services. Almost half of grantees also had career skills programs for adults. One

in 10 grantees reported programs for external certification of technical skills, such as software use and network maintenance.

Grantees reported on two implementation factors that prior research has identified as associated with effective CTC programming. About one-third of grantees have developed programs that deeply involve participants in their own learning through projects in which they become authors of technology content (e.g., designing Web sites, creating digital videos). Prior research has indicated that a key to overcoming the technology access divide (sometimes called the Digital Divide) is developing content that is relevant to underserved Americans (Lazarus & Mora, 2000). In addition, the number of partnerships that grantees have formed to help bring more participants, staff, and volunteers, as well as equipment donations and funding, to the centers is increasing. Studies of CTCs in California have shown that such partnerships are critical to bringing clients to centers, helping meet a variety of client needs, sharing ideas, and obtaining funding (Lazarus & Mora, 2000).

Grantee APRs also included some reports of the success of CTC participants in attaining particular educational and career outcomes. Eighteen percent of grantees reported on specific learning outcomes, documenting, among other things, students who passed their General Educational Development (GED) tests through CTC programming, improvements in adult basic education level, and successful job placement of CTC participants.

As grantees completed the work of opening and enhancing sites in Year 2, they shifted attention to developing and measuring the effectiveness of their programs. The increase in reporting on details of programming from Year 1 to Year 2 is likely to accelerate in Year 3. Recommendations for program-level improvement will be included as part of SRI's overall outcome evaluation report, to be submitted in early fall 2002. On the basis of the findings presented here, however, SRI makes the following recommendations for reporting requirements for the CTC program:

- Standardize program reporting forms for grantees.
- Provide clear definitions for reporting the number of participants.
- Identify ways to support grantees in collecting and analyzing data on program-independent outcomes for their reports.
- Encourage grantees to describe in detail the program design features that grantees believe contribute to those outcomes.

- Share knowledge of model programs with other grantees and the America Connects Consortium.
- Increase emphasis on reporting on data related to the sustainability of programs.

Grantees of the CTC program reported significant achievements in Year 2. Their programs attracted participants from target populations and provided them the access to computers, the Internet, and e-mail that they lacked. Many programs resulted in educational progress and increased job skills for participants. In Year 3 of the CTC program, grantees are well placed to have an even greater impact on participants' lives.

Background

Although increasing numbers of Americans have access to computers and the Internet either at home or at work, there are still wide disparities in access among different groups in the United States. According to the most recent statistics from the U.S. Census Bureau (2001), just over half of American households have a computer, and two in five are connected to the Internet. But Americans with the highest annual incomes (\$75,000 or more) are three times as likely to have a computer at home and four times as likely to be connected to the Internet as Americans from low-income households earning less than \$25,000 per year. White and Asian households are twice as likely to have a computer and Internet access in their homes as African American and Latino households. Region and urbanicity are also factors associated with inequities in computer and Internet access. Roughly 1 in 10 school-aged children in America have no access to computers at all, and another 23% have access only in school, where use may be limited to once or twice a week when students visit computer labs for short periods.

Improving technology access for Americans who have limited access at home, school, or work is an important first step to improving opportunity, because access to computers and the Internet makes it possible to learn valuable skills and use information that can help individuals realize their dreams for education, career, and a brighter future. For example, researchers have found that having access to technology outside school can make a difference in children's achievement in school, as well as their proficiency with technology (Rocheleau, 1995; North Carolina Department of Public Instruction, 1999; Schaumburg, 2001). Those adults who have Internet access at home are able to and do take advantage of the opportunity to take courses online or conduct research for classes they are taking. One-quarter of adults report doing so, and one in five use the Internet to search for jobs (U.S. Census Bureau, 2001). Access to computers and the Internet can be a gateway to educational opportunity for both school-age children and adults.

Community technology centers (CTCs) are points of public technology access and places of learning for Americans who are least likely to have a computer or Internet access at home, school, or work. The CTC movement began in the late 1980s in Harlem, New York, and now includes more than 1,000 community access points across the country. In

addition to funding from the National Science Foundation and the U.S. Department of Education, nonprofit organizations such as PowerUP, the Urban League, and the Boys and Girls Clubs of America, as well as for-profit corporations, have contributed to building CTCs across the United States in the last several years.

Prior Research on Community Technology Centers

Early indicators are that these investments, at least in part, are paying off. Community technology centers are providing technology access to those who are least likely to have technology access elsewhere (Fowells & Lazarus, 2001; Strover, Straubhaar, & Tufekcioglu 2001). Low-income Americans and ethnic minorities are among those most widely served at community technology centers (Chow, Ellis, Mark, & Wise, 1998). At the same time, research suggests that community technology centers' success in increasing on-site technology use depends on how well the goals of enhancing technology access fit within the larger institutions where these access points are housed and the degree to which staff see their role as helping to guide and instruct others in the use of technology (Lentz, Straubhaar, LaPastina, Main, & Taylor, 2000).

In addition to providing technology access, community technology centers are sites where people can practice using new technologies, extend learning time, and gain valuable career skills. Participants who visit CTCs tend to use the centers for the same reasons others with home access to technology use computers: to look for information on the Internet, to do homework, and to look for jobs (Fowells & Lazarus, 2001). Regular visitors to community technology centers perceive these sites as valuable resources for achieving educational and career aims (Chow et al., 1998).

What makes community technology centers effective, however, is just beginning to be understood. Fowells and Lazarus's (2001) study of community technology centers across California argued that successful centers were ones that tailored their curricular offerings to the particular needs of the communities they served. Rather than relying on packaged curricula and software alone, these centers generated their own approach to teaching participants about and with technology. The kinds of partnerships that are formed are also important to the success of community technology centers. For example, building connections with industry is important to help ensure that curricular resources are relevant

and support job placement (Chapple et al., 2000; Fowells & Lazarus, 2001). Similarly, connections to school are believed to be important to programs whose aim is to boost student achievement (Fowells & Lazarus, 2001).

Objectives of the U.S. Department of Education's CTC Program

In 1999, Congress enacted legislation that would support the growth of community technology centers and address the educational needs of Americans who were least likely to have access to computers or the Internet at home. The U.S. Department of Education's Community Technology Centers (CTC) program is authorized under section 3122 of the Elementary and Secondary Education Act

to increase access to technology and promote the use of technology in education through the development of model programs that demonstrate the educational effectiveness of technology in urban and rural areas and economically distressed communities. (Federal Register, 1999, p. 22954)

Since it was first authorized, the program has made three rounds of grants to a variety of community-based organizations, local education agencies, higher education institutions, faith-based organizations, and other public and private nonprofit or for-profit agencies and organizations. The CTC Program supports these grantees in building new sites (community technology centers) and/or enhancing educational services at existing sites through 3-year grants awarded on a competitive basis.

The first round of grantees (FY99) of the program have made significant strides toward expanding technology access in the neighborhoods and communities they serve. Last year, SRI found that FY99 grantees had opened 50 new community technology centers and enhanced the technology or program offerings at 17 other centers (Penuel et al., 2000). Also, by the end of the first year of funding, the sites funded through the CTC program had built extensive links among educational, government, community, and business organizations aimed at promoting opportunity for adults and children in their communities (Penuel et al., 2000).

As the program enters its third year, grantees and the U.S. Department of Education are increasingly focused on going beyond providing access to realize the other parts of the legislative intent for community technology centers: providing educational services and

developing model programs. Together with the support of the America Connects Consortium, the technical assistance contractor for the CTC program, and SRI, grantees are developing a shared understanding of the important objectives that all grantees can be expected to meet, as well as the kinds of data or indicators that will provide evidence that those objectives are being met. As part of its contract, SRI developed a set of recommended Government Performance and Results Act (GPRA) indicators to guide data reporting and help orient grantees toward reporting progress on program-level goals (Table 1). This report is a summary of findings to date on progress toward those common objectives for the first two rounds of grantees (FY99 and FY00), using data gathered from grantees' own annual performance reports (APRs).

Table 1. Recommended GPRA Indicators

Objective 1. Provide access to computers and technology to adults and children in low-income communities who otherwise would lack that access
1.1 Number of new and expanded access points
1.2 Number of computer workstations, per center
1.3 Level of Internet connectivity
1.4 Average unduplicated number of participants served, per grantee
1.5 Percentage of centers located in urban empowerment zones and urban enterprise communities
Objective 2. Support learning outcomes by providing educational programs and services to center participants
2.1 Extended opportunities for school-age (preK-12) participants to learn, per grantee (measured by time spent on reading, writing, mathematical problem solving, and homework)
2.2 Number of participants (young adults, out-of-school youth, adults) who participated in technology-supported academic programs, per grantee
2.3 Number of participants who successfully completed at least two basic computer literacy courses, per grantee
2.4 Number of participants who participated in advanced technology courses leading to an externally recognized certification, per grantee
2.5 Number of participants who reported acquiring technology skills relevant to their career objectives, per grantee
Objective 3. Develop model programs that demonstrate the educational effectiveness of technology
3.1 Percentage of grantees that have involved participants as authors of technology content in curricula, programs, and services
3.2 Number and types of new and/or sustained community partnerships, per grantee
3.3 Percentage of grantees that demonstrated the effectiveness of technology-supported programs in target communities
3.4 Percentage of grantees that have developed model programs with the potential for continuation and replication

At present, none of these recommended indicators has established a baseline or a target for improvement. Because grantees have not yet been required to report data to measure progress toward these program-level objectives, SRI has had to rely on encouraging grantees to report voluntarily on these data in their APRs, in order to establish a baseline. SRI is working with the U.S. Department of Education toward securing formal approval

of these recommended GPRA indicators and required reporting formats. Still, as Table 2 indicates, this year’s Findings Summary report may yield reliable data for establishing a baseline for several of the recommended GPRA indicators.

Table 2. Grantees Reporting Data on the Recommended Indicators

GPRA Indicator	Number Reported	Number Did Not Report	Percentage Reported
1.1 Number of new and enhanced access points (sites)	114	0	100%
1.2 Number of workstations	81	33	71%
1.3 Level of Internet connectivity	80	34	70%
1.4 Average unduplicated number of participants served	57	57	50%
1.5 Percentage of sites located in urban empowerment zones or enterprise communities	114*	0	100%
2.0 Number of grantees that reported attendance in one of the following program areas	89	25	78%
2.1 Learning programs for preK-12 (47)	33	14	70%
2.2 Academic programs for young adults, out-of-school youth, and adults (46)	33	13	72%
2.3 Computer literacy (76)	57	19	75%
2.4 External certification (11)	11	0	100%
2.5 Career skills (52)	34	18	65%
3.1 Percentage of grantees that have involved participants as authors of technology content	**	**	
3.2 Number and types of community partnerships	108	6	95%
3.3 Percentage of grantees that have demonstrated effectiveness of technology-supported programs	**	**	
3.4 Percentage of grantees that have developed model programs with potential for continuation/replication	**	**	

*Not reported explicitly – obtained from other sources.

**For these indicators, SRI inferred from data on individual program descriptions and outcomes in grantees’ annual performance reports. Results are shown on pages 34 to 44.

Of the three proposed GPRA objectives, grantees provided the most information for the first objective, providing access to underserved communities. All the APRs that were

reviewed included information about the number of new and enhanced technology access points. At least 70% of grantees included data about the number of computer workstations, type of Internet connection, and number of participants served. Reporting for the second proposed GPRA objective, providing educational programs and services, was less complete. Most grantees (78%) included information about the types of programs they offered but just half (50%) provided information about the number of participants across all their programs. Without confirmation that a grantee has reported on all of the programs and services offered, the number of participants is better understood as a rough estimate of the total number of participants in educational programs at centers.

Similarly, not all grantees reported information about the third proposed GPRA objective, developing model programs. Given that the outlines for reporting do not specifically require grantees to indicate whether they have developed programs of these types, it is not known whether grantees did not develop model programs or whether they overlooked reporting them. To reflect the information about model programs that was given in APRs, this summary of findings presents examples of model program development without analyzing the extent to which grantees are developing model programs. Nearly all grantees (95%) did report on one aspect of model programs, community partnerships.

Despite the incompleteness of reporting, all of the GPRA objectives were reflected to some extent in Year 2 APRs. Moreover, grantees reported on many more common data elements in Year 2 than in the first year when SRI completed its analysis of FY99 grantees' APRs. Therefore, nearly all of these data will be useful in establishing the baseline for the indicators of grantee progress toward CTC Program goals.

Methodology

Grantee annual performance reports (APRs) were used in compiling this summary of findings. All CTC Program grantees are required to submit an APR in order to receive a continuation award. The 3-year grants awarded in FY99 and FY00 through the CTC Program are multiyear discretionary grants, which means that funding is not guaranteed for all three years at the time of initial notification of award. Continuation awards are 1-year grants that provide funding in the second and third years of the grant period, provided grantees demonstrate acceptable progress toward meeting their objectives.

The Department of Education provides guidelines for completion of the APRs. These guidelines call for grantees to report on progress toward their proposed objectives and spending targets, and on any unanticipated outcomes during the performance reporting period. Grantees are expected to provide examples of accomplishments for each project objective, quantified whenever possible. For any objectives not attained and for planned activities not implemented, they are expected to provide reasons and propose corrective action. Likewise, grantees are expected to provide explanations for variations from budgetary plans and relate these to modifications in planned activities.

SRI has provided additional guidance on APR completion. During the CTC Project Directors Meeting in San Diego (June 2001), SRI presented an APR template (Appendix) and exemplar to use as a model report. Although grantees are not confined to using the APR template, it does provide them with a tool for ensuring that their APRs include information in all areas of interest to the Department of Education, and many of the Year 2 APRs suggest that the template was of use to grantees.

The APRs from FY99 and FY00 grantees provided the data for this summary of findings from Year 2 of the CTC Program. There were 132 grantees in Year 2 of the evaluation, representing both FY99 and FY00 grantees, and SRI received APRs from 114 of these. To code and analyze information provided in the APRs, SRI developed a database with elements that reflect the goals of the CTC Program as listed in the proposed GPRA indicators. Before coding APRs, SRI researchers attended an anchoring session to ensure that all coders had a shared understanding of how to enter information into each field in the database. Researchers were also given a coding guide that included operational

definitions of key terms, such as “workstation” (Indicator 1.2) and decision rules for how to report specific kinds of information. After coding two APRs together as a group, researchers worked individually to code findings, relying on the authors of this report for questions about coding. The authors conducted spot checks of the database to ensure reliability of coding and to ensure that all available data were included in the database.

Results of the analysis of the database follow, beginning with an overview in the next chapter. The three chapters following the overview describe progress in increasing access to technology, in providing programs and services to target communities, and in developing model programs. The concluding chapters highlight the challenges faced by CTC Program grantees and provide recommendations for the program.

Overview: CTC Communities and Program Areas

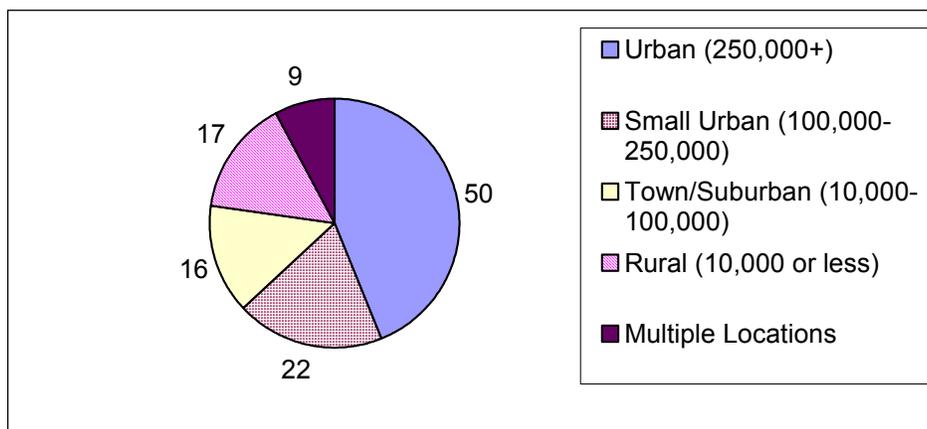
SRI's evaluation of Year 1 of the CTC Program included a summary of findings from FY99 grantee proposals and APRs. Of the 40 CTC proposals funded in Year 1, SRI received the proposals and APRs for 34 grantees. In Year 2 of the CTC Program, the number of grantees rose to 133. Of these, SRI reviewed the APRs of 114 grantees, including both FY99 and FY00 grantees. The following section provides a descriptive overview of the communities the CTC Program serves and the programming provided, and compares the findings for Year 2 with those for Year 1.

Types of Communities Served

In Year 1 of the program, 20 grantees (71%) served urban areas (N=28). That number increased in Year 2 to 88 grantees (77%) serving urban areas. In Year 1, 8 grantees (29%) were in rural areas; in Year 2, the number of grantees serving rural areas was 17 (15%), with an additional 9 grantees (8%) serving more than one type of community at multiple community access points or sites.

To identify community type for grantees in Year 2, SRI used the Census 2000 population data available from the U.S. Census Bureau Web site. Figure 1 shows that the largest plurality of sites were in large urban areas. Nineteen percent were in small urban areas; town and rural settings had similar numbers of sites.

Figure 1. Size of Population Centers Served by Sites



Target Age Groups

In Year 2, the primary participants for CTCs continued to be school-age children and adults. In Year 1, 24 grantees (73%) targeted school-aged children, and 23 (74%) targeted adults ages 19-55. The number of grantees targeting those age groups rose in Year 2 to 97 (85%) targeting school-age children and 103 (90%) targeting adults (Table 3).

Table 3. Grantees Targeting Age Groups

Age Group	Year 2 (N=108)
Pre-school children (<5)	27 (24%)
School age youth (5-18)	97 (85%)
Adults (19-55)	103 (90%)
Seniors (>55)	55 (48%)
Families	32 (28%)
Not reported	6 (5%)

The number of grantees targeting seniors was 55 (48%) in Year 2 and 19 (61%) in Year 1. Twenty-seven grantees (24%) targeted pre-school-age children in Year 2, compared with 10 (30%) in Year 1; 32 grantees (28%) targeted families in Year 2, compared with 15 (52%) in Year 1.

Types of Program Objectives

CTC grantees offer a variety of types of programs with different kinds of objectives, including programs aimed at improving computer, Internet, or e-mail access; improving English literacy skills; helping children meet educational goals; helping adults meet educational goals; improving participants' skill in using computers/computer applications; teaching advanced technical skills; and supporting community/economic development. Definitions and an example of each type of program objective are provided below.

Improving Computer, Internet, or E-mail Access. Many community technology centers have “open access” hours in which any community resident can use technology. Staff or volunteers are typically available during open access hours to assist participants. In addition to basic access, sites may address specific community needs. For example, at the Lowell Telecommunications Corporation expansion site at Girls, Incorporated, 6- to 16-year-olds attended open access hours for activities ranging from using educational software to playing games, typing homework, and using the Internet for research.

Helping Children Meet Educational Goals. These programs include classes to help preK-12 students achieve their educational goals. PreK-12 programs include tutoring and academic enrichment classes offered before and after school, as well as during the summer. In addition to these, some sites offer classes that deepen student learning through engaging in extended projects that use sophisticated multimedia technologies. At the Detroit International Stake Adult Housing Corporation in Detroit, Michigan, teachers from two neighborhood elementary schools selected students for an 8-month, after-school tutorial program based on needs for extra time with reading, math, and computer proficiency.

Helping Out-of-School Youth, Young Adults, and Adults Meet Educational Goals. Adult classes include General Educational Development (GED) preparation and adult basic skills (e.g., literacy and mathematics). At some sites, credentialed teachers deliver instruction in formal classes; in other sites, self-paced tutorials are used alone or in conjunction with classes. Many technology access sites are located in communities where English is a second language; therefore, programs using available software designed to improve English language skills are offered. At the site operated by the Prince George’s County Public Schools in Upper Marlboro, Maryland, the Adult Education Program offered a citizenship class in addition to its English as a Second Language (ESL) class. The GED program of the Mille Lacs Band of Ojibwe in Onamia, Minnesota, met at least two days each week and offered two classes per quarter over the Internet.

Improving Participants’ Skill in Using Computers and/or Computer Applications. Most sites offer introductory classes, typically beginning with familiarization with the computer and the Internet and then moving on to instruction in the use of software. Types of software generally included are word processing, spreadsheet, database, and presentation programs. Some centers tailor these classes to specific audiences, such as adults or youth. For example, at Jefferson State Community College in Birmingham, Alabama,

children attended computer literacy classes while their mothers attended welfare-to-work instruction.

Teaching Career-Focused/Advanced Technical Skills. Technical and career skills are another category of class offerings. In the technical skills classes, adults and/or youth may learn how to navigate and troubleshoot problems with operating systems, learn how to assemble and repair recycled computers, or prepare to qualify for external certification with companies such as Microsoft and Oracle. In these classes, adults often also learn basic office computer use, as well as job search and interview skills.

An A+ programming course was offered by the Ganado Unified School District in Ganado, Arizona. The first two semesters were offered in 2000-01, with the advanced courses planned for 2001-02. The STARS program at the Springfield Learning Center, a site of Lincoln Land Community College in Springfield, Illinois, prepared participants for careers with both life skills topics (communication skills, money and time management, parenting, and self-esteem) and technology topics (operating systems, keyboarding skills, word processing applications, and Internet use).

Computer repair and recycling programs are a special class of advanced technical skills program that are increasingly common among grantees. These programs generally serve two goals: some participants learn to repair computers; others receive the refurbished computers in recognition of their achievement in other programs. For example, Hartford Public Schools in Hartford, Connecticut, hopes to supply all graduates of programs at its Community Technology Learning Centers with low-cost computers. At the time of reporting, a program to train students to refurbish computers had just begun, and until that program could supply enough computers, the grantee found a business partner, Kaplan Computer, to supply them.

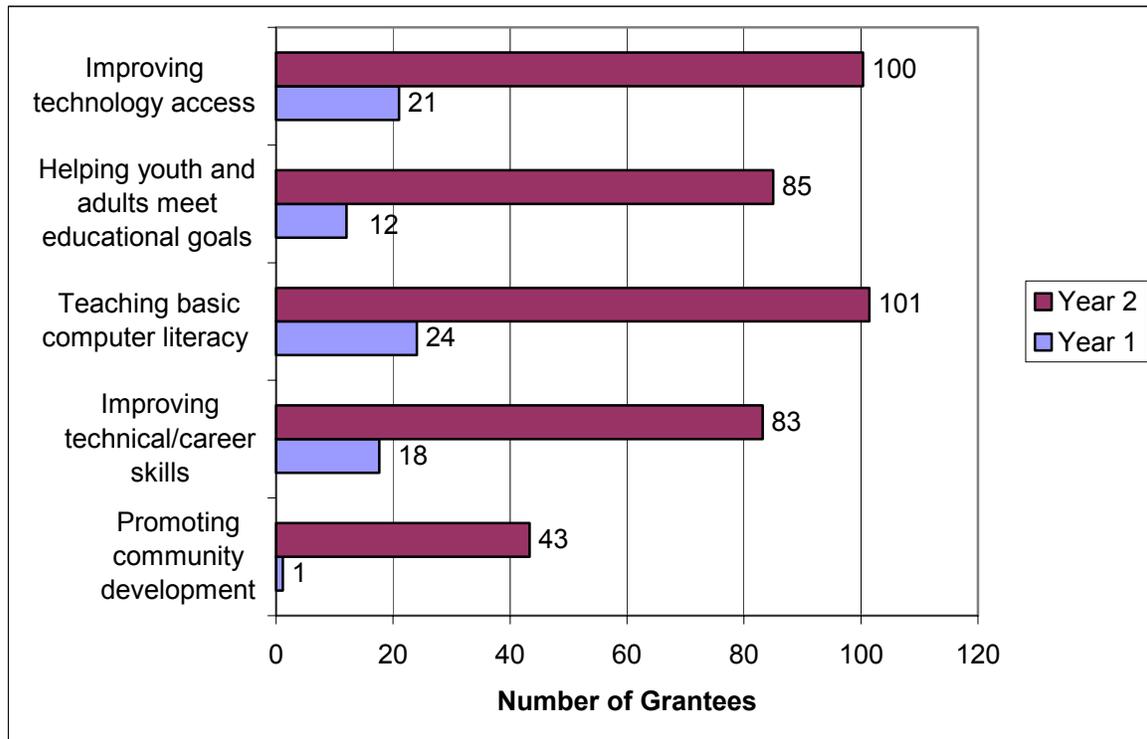
Supporting Community/Economic Development. These programs include activities specifically designed to help communities recognize and develop their identity and assets. For example, New Directions for Youth in Van Nuys, California, makes graduates of its bilingual (English/Spanish) technology classes eligible to become volunteer aides at its site. Therefore, the classes include both technical and empowerment aspects, such as writing and presenting a statement of academic and professional goals. To support students' efforts, staff perform a mentoring role and are available to counsel students as they define their goals.

Local Program Objectives in Year 2 of the CTC Program

The program objectives that are most common to grantees remained the same from Year 1 to Year 2. The majority of grantees in both years reported providing programs aimed at improving basic computer literacy, increasing technology access, helping youth and adults meet educational goals, and teaching advanced technical skills/career readiness. Many grantees also provided programs and services aimed at community development.

Figure 2 presents the program areas from most to least frequently offered. Two program areas, computer literacy and access, were predominant in both years. In Year 1, 24 grantees (86%) offered programs aimed at improving basic computer literacy. That number rose in Year 2 to 101 (89%). There was an increase in the number of grantees offering open access to computer labs in Year 2, rising to 100 (88%) from 21 (75%) in Year 1.

Figure 2. Program Objectives of Grantees



Meeting educational goals and providing career preparation for adults grew in emphasis in Year 2, as centers moved from opening sites to implementing programs. In

Year 1, 12 grantees (43%) reported providing programs and services to help children and adults meet educational goals. That number rose to 85 grantees (75%) in Year 2. Educational programs included after school sessions for K-12 students using software designed to increase skills in reading, writing, and math, and GED high school equivalency preparation for adults. Eighty-three grantees (73%) also offered programs and services to help adults improve their career potential, compared with 18 grantees (63%) in Year 1. These programs included resume preparation and job search training, as well as certification programs for A+ programming and Microsoft software. In addition, 21 grantees (18%) in Year 2 had computer repair and recycling programs.

Programs and services to help build and economically develop communities increased greatly from Year 1 to Year 2. Only 1 grantee (4%) provided these in Year 1, compared with 43 (38%) in Year 2. As centers become widely known as service providers within their communities, they may be playing an increasingly significant role in supporting local businesses and community organizations by helping to encourage entrepreneurship, match participants to services, and provide ways to participate in the world of e-commerce. In the next chapter, two contrasting sites are described, and grantee efforts to increase access to technology in the communities they serve are reviewed.

Improving Access

The approach grantees take to improving technology access varies from site to site. For example, M. Robinson Baker YMCA is a community technology center funded by the U.S. Department of Education as part of the East Bay Neighborhood Links collaborative in Oakland, California. The YMCA is directly across the street from an elementary school, and the CTC is located in the first room to the left of the entrance. Other rooms at the Y include a classroom that serves as a homework club, a kitchen for cooking classes, and a gymnasium for sports and dance activities. The CTC is one of the smaller rooms at the Y, the size of a very small classroom. Twelve computers with DSL Internet connections are on tables against the walls of the room, with scanners and printers interspersed throughout the room. There are round tables at the front and back of the room for youth to do projects together; there is educational software on a small rack from which they can make selections. The center director has a small desk and a bookcase in the corner of the room containing files on all the students' activities, worksheets, and art supplies. The walls are covered with student artwork and with posters of computer parts and different concepts of the Internet.

Across the country in New York City, the Technology and Learning Center (TLC) @ the Armory serves residents in an enterprise zone within the Washington Heights neighborhood in Upper Manhattan. Like the YMCA in Oakland, the Armory is first and foremost a site where students participate in sports; the building houses a large indoor track used after school by hundreds of students each day. But unlike the CTC at the Y, the TLC is not visible when one walks in the door. The TLC depends on word of mouth and referrals from other programs to get youth, adults seeking employment, and seniors to classes and open access hours at its second-floor location in the large Armory building. The space is much larger than the Y space, however: the TLC houses two large laboratories within a single site, with roughly 40 computers available for student use. Staff have separate office spaces with their own workstations and a file server from which the network of computers is maintained.

The sites at M. Robinson Baker YMCA and the Armory illustrate some of the important ways sites differ in their designs for improving access. Some sites are housed

within existing institutions; others are storefront or stand-alone spaces. Some depend on referrals from other agencies for participants; others piggyback on programs that are already taking place within their buildings. Some are designed to appeal specifically to youth; others must be designed to accommodate participants of all ages. Centers also differ in the size of the lab: some may have as few as 2 or 3 computers; others may have as many as 40 to 50 computers.

What is common to these different physical arrangements is the goal of improving technology access for the participants served by each site. In this section of the report, we describe grantees' progress toward improving technology access. The proposed measures of grantee performance toward meeting the goal of increased access are: the number of new and enhanced technology access sites; the number of workstations, by site; the level of Internet connectivity, by site; the average unduplicated number of participants served monthly, by grantee; and the percentage of centers located in urban empowerment zones and urban enterprise communities. The results for these goals, as reported in APRs for 2000-01, are provided in this chapter.

Number of New and Enhanced Access Sites

All the APRs received from FY99 and FY00 grantees (114) indicated the number of sites that had been opened or enhanced. Enhanced sites are those that were already open to use by the community, but improvements were made to the site, such as adding or upgrading computers. In some cases, the numbers of new and expanded sites were not explicitly stated by grantees. Nonetheless, all the APRs included enough information for researchers to identify the numbers. Since its inception, the Community Technology Centers Program has supported the opening of 332 new technology access sites and enhancement of 180 access sites (Table 4). There are a total of 512 sites. There are a total of 512 sites. On average, grantees opened 2.9 new sites and enhanced 1.6; the average number of sites per grantee, both new and enhanced, was 4.5.

Table 4. New and Enhanced Technology Access Sites

	New Access Sites	Enhanced Access Sites
Total	332	180
Average per grantee	2.9	1.6

Number of Computer Workstations, per Site

Each technology access site tries to provide a sufficient number of computer workstations so that participant participation is not limited by a lack of equipment. To provide a range of programming, many grantees find that a site ideally needs to have typically two dozen or more workstations. This allows the site to offer instruction efficiently in basic computer literacy and other introductory-level classes and programs. It is also helpful for a site to have a second area in which smaller groups can attend more specialized programs requiring more interaction among teachers and participants. Therefore, the number of computer workstations at a site is one indicator of the kinds of programming a site can offer successfully.

Almost three-quarters (71%) of grantees provided some information about the number of computer workstations at each of their sites. To describe in detail the quality and purpose of workstations, SRI researchers coded the information provided into three levels of computer workstations, as described in Table 5. Each level of workstation consists of a general description, followed by a list of the hardware, software, and peripherals included at each level. Note that level 2 reflects the composition of a computer workstation for today's typical office employee.

Table 5. Levels of Computer Workstations

Level	General Description	Hardware, Software, and Peripherals
1	Not state-of-the-art but serves many needs	<ul style="list-style-type: none"> • Computer (CPU, monitor, keyboard, mouse, one or more of floppy/CD/Zip drives) • Software for basic tasks (word processing, spreadsheet) • Not networked • Either no Internet or through modem • May or may not be connected to a printer
2	Reflects current equipment that serves many needs	<ul style="list-style-type: none"> • Computer (CPU, monitor, keyboard, mouse, CD, speakers) • Software for basic and additional tasks (word processing, spreadsheet, presentation, graphics/photo editing, database, Web design/publishing) • Networked (LAN or WAN) • Internet through cable, T1, or DSL • Connected to one or more printers
3	Specialized hardware and software (e.g., Sun Solaris, Sun Ultra)	<ul style="list-style-type: none"> • Computer with more power and speed than a personal computer • Software for a specialized purpose (e.g., video editing, graphic design, engineering, architecture)

As shown in Table 6, a majority of grantees (62%) had level 2 workstations at their sites. Sixteen percent of grantees reported that they had level 1 computer workstations at their sites, and 4% reported level 3 or specialized workstations at their sites. An additional 11% of grantees reported the number of workstations without providing sufficient information for researchers to classify the level of those workstations.

Table 6. Number of Workstations Reported

Level	Number (Percent) of Grantees Reporting	Average Number of Workstations Per Grantee Reporting	Total Number of Workstations Reported
1	18 (15.8)	16.8	302
2	71 (62.3)	50.5	3,582
3	4 (3.5)	1.5	6
Number identified but of unknown type	12 (10.5)	58.1	697
Total	105	31.7	4,587

Because not all grantees reported the number of workstations, the estimate of how many computers are in CTCs funded by the Department of Education is likely to be low. However, using actual figures from reports, we were able to identify that grantees had at least 4,587 computer workstations at their sites (Table 6). There were 302 level 1 workstations, with an average of 16.8 level 1 workstations for each of the 18 grantees reporting these. Seventy-one grantees reported a total of 3,582 level 2 workstations, or 50.5 per grantee for those who have level 2 computers. Four grantees reported having a total of 6 level 3 workstations, an average of fewer than 2 of these workstations per grantee reporting them. The number of computer workstations reported that could not be classified is 697, more than 15% of the total number of workstations reported.

It is important to note that there is additional hardware that influences the kind of programming a site can offer. Grantees are not required to report in detail all of the hardware available at their sites, but in addition to computer workstations, most reported peripheral equipment such as printers and scanners. Some also reported that their sites had multimedia workstations or video editing workstations.

Level of Internet Connectivity, per Site

The Internet has become an important resource for both school-age children and adults for information needed to complete school projects, look for work, or participate in the social and political life of their communities. To provide sufficient Internet access to participants, sites need to have many or all of their computer workstations connected to the Internet, and those connections must be reliable and made with newer, faster, high-bandwidth technologies—DSL or T-lines (T1 or T3), for example, instead of the slower telephone modems commonly used in home workstations. The number and kinds of Internet connections in a site provide one indicator of how well the site can serve participant needs for access to information available on the Internet.

Seventy percent of grantees reported whether their sites have Internet connections. Out of 12 grantees reported, they had at least one site with no Internet connection (Table 7), 4 reported having no Internet connection at any site. The other eight grantees had at least one site with some type of Internet connection. In many cases, the process of preparing the physical location of each site took longer than expected, and planned Internet connections were not completed before the APRs were submitted.

Table 7. Types of Internet Connections Reported by Grantees

Type	None	Unknown	Modem	DSL	T-line	Cable	ISDN	Frame Relay
Number Reported	12	38	12	29	38	8	4	1

* Some sites have more than one type of connection.

Only 12 grantees reported using modems for Internet connections, but only 2 of these sites had no other type of Internet connection at their sites. More than half of grantees (53.5%) had some sites with higher-speed connections (DSL, T-line (T1 or T3), cable, or ISDN).

Median Number of Participants Served

The number of participants served by grantees and sites is difficult to calculate accurately from grantees' APRs. Half of all grantees (50%) reported information on the

number of participants served, but grantees differed on how they calculated these numbers. Some reported the number of participants who participated in particular classes or programs; others reported the number of participants who signed in at a site, either for a class or for open access use. None of the grantees provided a comprehensive set of statistics, detailing both how many unduplicated participants were served across programs and services and how many were served in each of the programs and services.

On the basis of the information provided by grantees in their reports, the median number of participants served across the sites of 57 grantees was 575 (Table 8). The mean number of participants served monthly per site was 227. Both the mean and median number of participants are reported here because of the wide spread of numbers reported by grantees. If all grantees had reported data on attendance, the estimated reach of the CTC program would exceed 110,000 participants. This estimate is based on multiplying the mean number of participants per grantee by the total number of grantees. One should interpret such an estimate with caution, however, since centers that did not report data may have had lower or higher attendance at their programs. Missing data prevents us from knowing an exact figure on the reach of the program; however, the accurate count of participants served would likely exceed the numbers given here if all grantees had reported participant numbers for each of their programs and services.

Table 8. Number of Participants Served

<i>Median</i> number of Participants Per Grantee	575
<i>Mean</i> number of Participants Per Grantee	849
<i>Mean</i> number of Participants Per Site	227
<i>Estimated Reach of CTC Program</i>	>110,000*

*Estimate based on figures from 57 grantees that reported attendance data.

Percentage of Sites in Underserved Communities

Grantees located in urban empowerment zones or urban enterprise communities were identified by using the CTC Program’s grantee list as an index of how well grantees are

serving economically distressed communities. Almost half of grantees (45%) had sites in these underserved areas.

In addition to those grantees serving communities identified as urban empowerment zones or enterprise communities, many grantees serve low-income communities. For example, NBC USA Housing XXII is a grantee serving the town of Vicksburg, Mississippi, and the surrounding rural area. Participants have incomes below poverty level; only one-third of adults have high school diplomas. Sibley County is a grantee in Gaylord, Minnesota, serving Latino and Chicano farm and food-processing workers who have low incomes and educational attainment.

Progress on Improving Access

Grantees are reaching many communities through new and expanded access points. The technology they are able to provide is reasonably up-to-date and allows sites to provide introductory-level programs. As CTC participants develop higher-level needs, many sites are able to obtain equipment and staff to offer more specialized programming.

The number of CTCs opened since the last time grantees reported on these data has increased tremendously. Year 1 reports indicated that 50 new access sites were opened and 17 had been enhanced. Year 2 reports indicated that 332 new access sites had been opened and 180 were enhanced. This rate of progress suggests that the delays in implementing plans for increased access grantees reported in Year 1 were temporary. Moreover, additional grantees contributed to the much larger number of new and enhanced sites.

Although not all grantees reported data about their sites' computer workstations and networking connections in Year 1, it is clear that sites were much better equipped in Year 2. Of grantees who reported computer workstations in Year 1, there were 443 new computers and 157 older computers purchased, compared with more than 4,500 computers reported in Year 2. Similarly, almost 90% of grantees reported that their sites were networked, compared with fewer than 40% in Year 1.

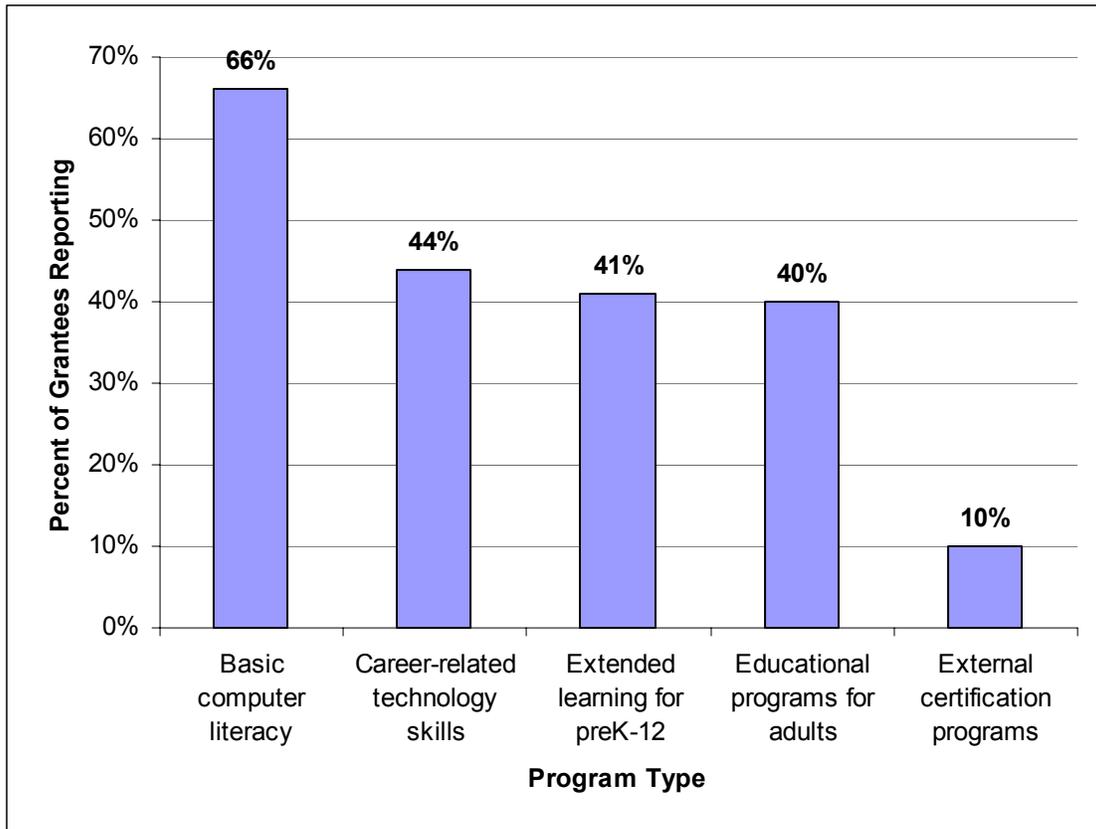
Providing Educational Services

The second proposed GPRA indicator addresses the broader educational role of CTC Program sites. It states that programs will support learning outcomes by providing educational programs and services to CTC participants. The proposed measures of grantee performance toward meeting this goal are: the provision of extended opportunities for school-age participants to improve their skills in reading, writing, mathematical problem solving, and homework completion; the number of school-age participants who participate in technology-supported academic programs, by grantee; the number of participants who successfully complete at least two basic computer literacy courses, by grantee; the number of participants who participate in advanced technology courses leading to an externally recognized certification, by grantee; and the number of participants who report acquiring technology skills relevant to career objectives, by grantee.

This chapter presents the program data available in Year 2 APRs. Because the proposed measures of performance on this objective are reflected only partially in the APRs, they are reflected only partially in this chapter. In particular, program attendance data are presented as one indicator of progress on providing educational services.

Figure 3 shows the percentage of grantees that reported program data by type of program. Two-thirds of grantees (66%) reported providing basic computer literacy programs. Three other program types—career-related technology skills, extended learning, and educational goals—were reported by similar proportions of grantees (44%, 41%, and 40%, respectively). External certification was less frequently reported (10%), and 8% of grantees did not report any program data.

Figure 3. Grantees Reporting Program Data by Type



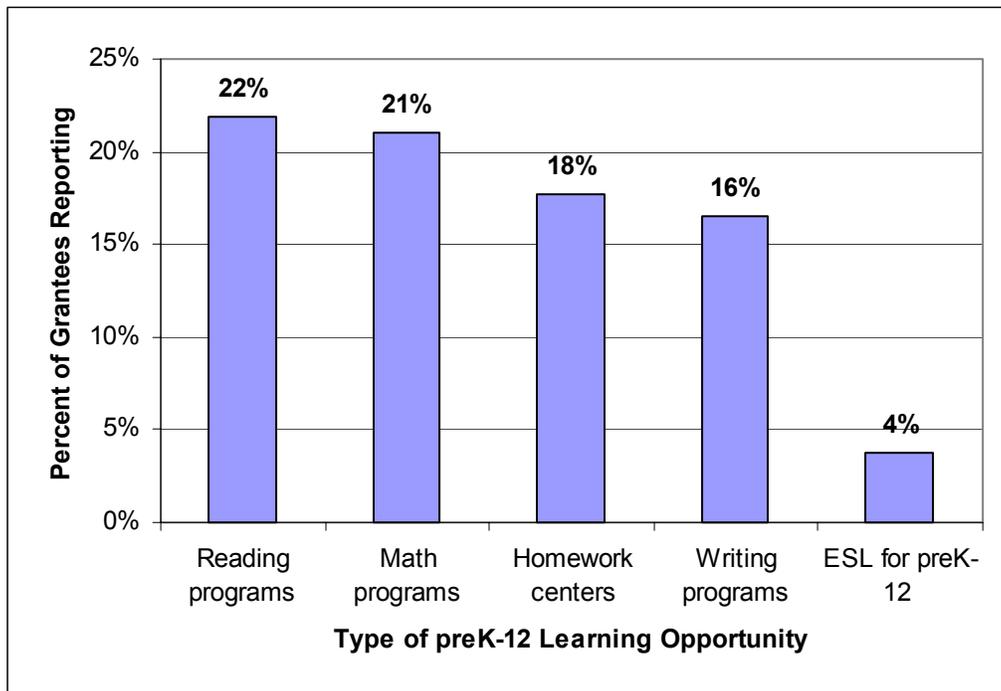
It is important to note that most grantees do not specialize in just one of these program areas. In fact, many of them specialize in at least three of the above areas. For example, of the 89 grantees that reported data on specific programs, 20% reported data for four and two program areas. Eighteen percent reported data for one and three program areas.

Providing Extended Opportunities for School-Age Youth to Learn

Forty-seven grantees reported program data for preK-12 educational programs, and 70% of these reported numbers of participants. Overall, 9,942 school-age participants participated in educational programs, with a median number of 131 participants per grantee reporting preK-12 educational programs. Figure 4 shows which learning types were addressed by those grantees who reported preK-12 educational program data. Twenty-two percent of grantees reported attendance data for reading and 21% reported data for math. Eighteen percent reported attendance data for homework and 16% for

writing programs. English as a Second Language (ESL) programs were least frequently reported (4%).

Figure 4. Grantees Reporting Extended Learning Opportunities, by Type of Learning Program



Many grantees reported data for more than one type of preK-12 educational program. Five grantees reported two program areas (reading, math *or* math, homework). Six grantees reported three program areas (reading, writing, math *or* reading, writing, homework *or* reading, math, homework). Ten grantees reported four program areas (reading, writing, math, homework *or* reading, writing, math, ESL). Three grantees reported data in all five program areas.

Increasing Adult Opportunities with Technology-Supported Education Programs

Forty-six grantees reported data for educational programs for young adults, out-of-school youth, and adults. Almost three-quarters (72%) of these reported numbers of

participants. Overall, 9,563 adults participated in educational programs, with a median number of 127 participants per grantee reporting these programs.

Figure 5 shows the types of adult educational programs reported. Twenty-one percent of grantees reported General Educational Development (GED) data, 14% reported basic adult education data, and 10% reported ESL data. Only 3% of grantees reporting adult educational programs offered secondary education programs, and 1% offered vocational education programs.

Figure 5. Grantees Reporting Adult Education Programs, by Type of Program Offering

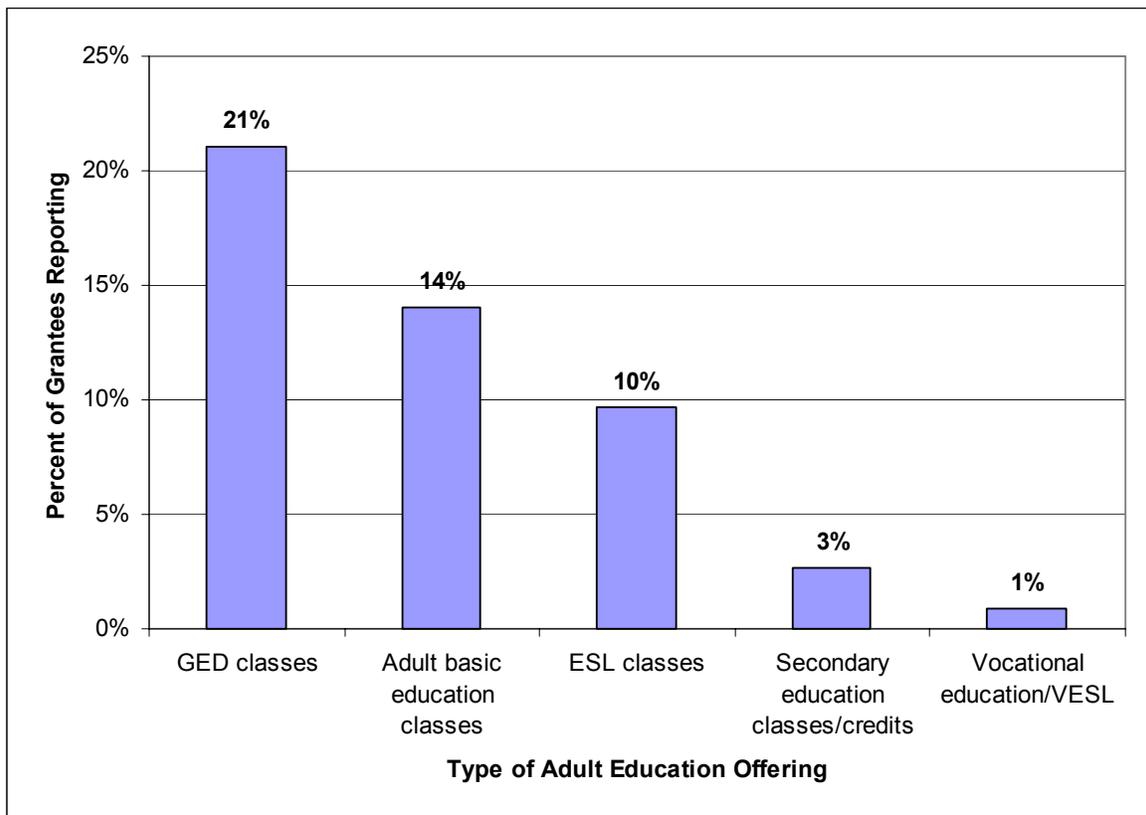


Table 9 shows the median number of participants, by type of adult educational program. As shown in the column labeled Number of Grantees Reporting Program, very few grantees reported data for secondary education (three grantees) or vocational education (one grantee). Therefore, the median numbers for these program types are less

indicative of program participation than the median numbers for the other types of programs.

Table 9. Median Number of Participants, by Type of Adult Educational Program

Type of Program	Median Number of Participants	Number of Grantees Reporting Program
GED	31	24
Basic adult education	75	16
ESL	114	11
Secondary education	250	3
Vocational education	30	1

Improving Basic Computer Literacy Skills

Seventy-six grantees reported data for attendance in basic computer literacy courses. Three-quarters (75%) of these reported numbers of participants. The median number of participants for grantees that reported this program area was 350. Overall, grantees reported 33,855 participants in computer literacy classes. However, this total is an overall number of participants across all computer literacy classes; a more meaningful total would indicate the unduplicated number of individuals who completed each content area generally included in introductory computer courses. These content areas are shown in the left-hand column in Table 10, with the median number of participants shown in the center column.

Table 10. Median Number of Participants, by Computer Literacy Content Area

Topic or Application	Median Number of Participants per Grantee	Number of Grantees Reporting Content
Introduction to computers	166	30
Word processing applications	77	20
Introduction to the Internet	73	17
Spreadsheet applications	42	17
Presentation applications	53	10
Web publishing applications	25	11
Photo-editing applications	29	6
E-mail applications	45	5

Increasing Job Opportunities

In addition to introducing participants to computer technology, many grantees have programs that can help unemployed and underemployed participants increase their job marketability. Eleven grantees reported program data for advanced technology courses leading to external certification. Five grantees had courses for A+ programming certification, three for Microsoft software certification, and one for Cisco network certification. For most of these grantees, the number of participants participating was smaller than that for the basic computer literacy classes. Fewer CTC participants enroll in certification courses because they require a commitment to a series of classes extending over many months. The number of successful participants in these courses is not yet known because the programs had not been operational long enough for participants to complete the course and take the certification exam. Other grantees reported plans to offer certification courses in the future.

Fifty-two grantees reported data for career skills, with 65% of these reporting number of participants. Overall, 6,349 participants participated in career skills training programs, with a median number of 56 participants per grantee reporting this type of program.

Progress on Improving Educational Service Delivery

Since Year 1, grantees have made substantial progress in offering programs to address educational needs. Three-quarters of grantees reported that they had educational programs in Year 2, compared with fewer than half (43%) of grantees in Year 1. Importantly, many grantees reported not only the types of programs offered but also the number of participants and other descriptive information. These data allowed SRI to calculate approximate participation rates for this report. Continued emphasis on reporting details of service delivery will support accurate assessment of the impact of the CTC Program.

Developing Model Programs

Development of model programs is the third objective in the proposed GPRA indicators for CTC Program grantees. This objective would require grantees to report on progress toward demonstrating the educational effectiveness of technology. Demonstrating effectiveness for CTCs is challenging. Effectiveness can be demonstrated by CTCs if they show evidence that their proposed objectives have been met. Demonstrating that participation in CTC programs *causes* improvements in outcomes, however, requires a rigorously designed evaluation with treatment and comparison groups. To date, few programs have submitted evaluation reports as part of their APRs that would warrant the claim that CTCs are the most effective means of delivering a particular service. Such evaluation designs are difficult to accomplish within voluntary programs, and most CTC grantees understand that their effectiveness rests on their ability to demonstrate that they reach the people they are intended to serve with the educational services they are providing.

SRI has recommended GPRA indicators that take into account the difficulties local grantees face in evaluating their programs but that set out model practices based on prior research on CTCs. The proposed measures of grantee performance toward the development of model programs encompass four criteria: the percentage of grantees that involve participants as authors of technology content in curricula, programs, and services; the percentage of grantees that demonstrate the effectiveness of technology-supported programs in target communities; the percentage of grantees that develop model programs with the potential for continuation and replication; and the number and type of new and/or sustained community partnerships, per grantee.

SRI's review of grantee APRs indicates that the goal of developing model programs is achievable and that grantees are beginning to develop programs that demonstrate uses of technology and that allow participants to become authors of the technology. In addition, grantees are tapping into a diversity of partnerships, seeking support for programming and organizational structures to ensure program continuation and replication. Although a few centers are reporting on outcomes for participants, none has included in its APR sufficient data to indicate whether programs are being evaluated in such a way as to measure overall

program impacts on these particular outcomes. The results for these goals, as reported in APRs for 2000-01, are provided in this section.

Programs That Involve Participants as Authors of Content

Identification of which grantees had programs that involve participants in authoring technology content took place in two steps. First, the SRI researchers who coded APRs noted any data in those reports that seemed to provide evidence of authoring activities. Next, the authoring entries in the database were reviewed to evaluate the evidence given in support of the authoring claim. Thirty-nine grantees' reports provided sufficient evidence that they were involving participants as authors of technology content. Authoring activities are ones in which participants produce information for "real-world tasks." This production includes the use of a diverse set of resources, particularly those whose availability has increased with access to technology (e.g., documents on the Internet, experts accessed via e-mail). In evaluating the evidence for authoring, authoring was distinguished from more typical uses of technology, such as creating reports and automating writing tasks. Table 11 shows the diversity of content and the number of grantees that have begun to develop programs in which participants not only have access to the technology but also are becoming producers of technology content.

Table 11. Grantees with Authoring Programs, by Program Type

Type of Program	Examples of Products Produced	Number of Grantees with Program
Web design	Web pages reflecting local community content or issues	24
Digital video	Documentaries about local schools	5
Digital audio	Music CDs	3
Projects	Stickers, ID cards, postcards	10
Newsletters and other publications	Newsletter on HIV/AIDS and other health issues; teen literary magazine	8
Program development	Participants developing curricula for programs	2

Authoring provides layers of opportunity for CTC participants. For example, at Project Reach Youth, Inc., in Brooklyn, New York, participants were already producing a quarterly literary magazine as part of a teen literary program. Initially, these teens took their work to a print shop, but with on-site publishing, they began to produce the magazine themselves, saving time and money, and learning to use publishing software in the process. At East Harlem, one of the New York Children’s Aid Society’s access sites, an advanced Web design team called the D*Zine Team takes the ideas of participants and turns them into Web content. For example, teens worked with the Team to create a Web site that would improve the attitudes of teens toward seniors and encourage them to assist seniors with small tasks and errands. With programs like these, some participants learn new technology skills, others focus on gathering information, and community awareness about particular issues is increased.

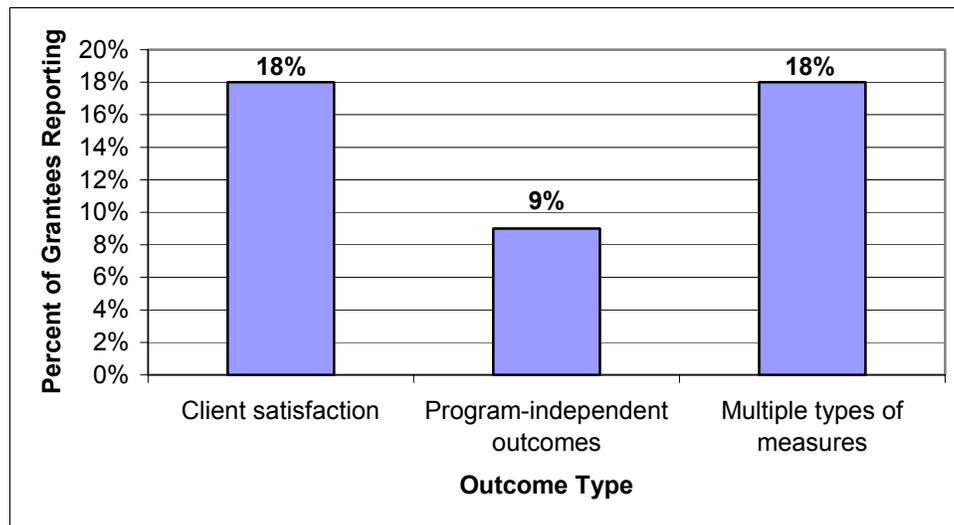
Programs That Demonstrate the Effectiveness of Technology-Supported Activities in Target Communities

Another indicator for measuring grantee progress toward the development of model programs is the percentage of grantees that demonstrate the effectiveness of technology-supported programs in target communities. Using their own objectives as a guide, grantees

are asked to show research-generated evidence of their progress. As noted above, demonstrating that participation in CTC programs *causes* improvements in outcomes, however, requires a rigorously designed evaluation with treatment and comparison groups. It is unclear from the APRs SRI viewed whether grantees have developed such evaluation designs. At present, the best evidence for “effectiveness” of programs therefore remains limited to the small percentage of grantees that reported on particular participant outcomes, regardless of the research designs used in grantees’ evaluation. The data reported below should not, therefore, be interpreted as evidence of program effectiveness; they are better interpreted as grantees’ first steps toward reporting outcomes that go “beyond” access and service delivery.

In our analysis, SRI researchers used five categories of outcomes: access, participation, participant satisfaction, program-independent outcomes, and multiple measures of effectiveness. A review of the APRs identified 72 programs that demonstrated some form of effective use of technology for their target communities across all these areas. Figure 6 shows the percentages of grantees reporting in the three categories most closely related to demonstrating effectiveness: participant satisfaction, program-independent outcomes, and multiple types of measures.

Figure 6. Grantees Reporting on Program Outcomes, by Outcome Category



Although the percentage of grantees reporting on outcomes using program-independent measures is low, several grantees reported the numbers of participants who made specific gains in educational or career-related outcomes. For example, the Minorities and Women Business Development Center Inc., in Binghamton, New York, reported that of four participants who participated in job retraining and skill transfer classes, one found employment in a new field and one opened a small business. Additional examples include:

- At the South East Regional Resource Center in Juneau, Alaska, 208 participants prepared for and passed the General Educational Development (GED) test.
- At the University of Denver in Denver, Colorado, 12 youths completed a Technology Academy and were employed as resident teachers, lab monitors, and technical maintenance staff.
- At the National Puerto Rican Forum's center in New York City, 41 Adult Basic Education participants showed a one-grade improvement in their adult basic education level.
- At Family Solutions in Cuyahoga Falls, Ohio, adult students earned 465 certificates for completion of Web-based modules on software use and job skills.

- At the American Indian Resource Center in Tahlequah, Oklahoma, 2 adults with only elementary school education completed classes and were hired as CTC aides because of their new skills.
- At the Arlington Community Foundation in Arlington, Virginia, 9 adults were placed in computer-related employment after participating in CTC programs.
- At the Northern Manhattan Improvement Corporation in New York City, 7 participants in a Customer Service/Office Skills program found employment requiring those skills shortly after completing their program.

The examples presented here suggest the many ways in which technology-supported programs might support improved outcomes for target communities. Program grantees have developed the kinds of programs and services needed by the populations they serve; a greater emphasis on reporting program goals and results using rigorous evaluation designs will provide better evidence of the effects of CTC programs.

Programs with Potential for Continuation and Replication

Providing access to technology to communities that have lacked it is a key objective of the CTC Program. However, it is also important for grantees to think about developing model programs that are sustainable beyond CTC Program funding. Grantee APRs indicate that many are thinking about ways to continue and replicate their programs beyond the 3-year grant period. Some are developing programming models that are innovatively drawing on local partners for equipment, space, and funding to ensure that programs continue. Others are focusing on building staff capacity to ensure that programs are sustained.

Jewish Vocational & Career Counseling in San Francisco, California, formed partnerships that will aid in sustaining programs. Instead of focusing solely on setting up and expanding technology access sites, the grantee also worked with community-based organizations that had computer labs but needed instructional expertise. In addition to full program delivery responsibilities, grantees might partner with other organizations and divide program delivery responsibilities according to expertise.

Future Teachers of Chicago staffed each of four sites with one teacher and four assistants: two college students who were prospective teachers and two high school

students. This model provided jobs and inservice training to the students under the mentorship of the teachers.

There are other trends that present innovative program models and indicate a strong potential for sustainability. These are programs that:

- Focused on intergenerational and family programming.
- Served special populations (e.g., immigrants, the disabled, chronically ill children).
- Developed sites that were embedded within existing community-based services.

Intergenerational and family programs acknowledge the broad range of needs that many participants of CTCs experience. Community strength and cohesion can be increased through intergenerational programs, and family programs address needs such as child care and parental involvement in their children's lives. At a low-income housing development in Cayuhoga Falls, Ohio, the Family Solutions site offers families the opportunity to create multimedia projects together once a month. The Oakland Community Partnership in California provides child care for participants enrolled in computer classes offered in English, Spanish, and with Asian language translation.

Targeting programs to narrowly defined participant groups can be more effective than offering a broad range of programming to participants with a wide range of needs. Some of the grantees that serve special populations have English as a Second Language (ESL) and Development (GED) programs for immigrant populations, as does the Boat People S.O.S. site in Falls Church, Virginia. This program serves a Vietnamese immigrant population and tailors classes to address their specific needs, including citizenship classes. The Seattle Public Schools CTC program is a partnership between a housing project and an elementary school that focuses on early childhood literacy, involving parents or caretakers in the children's activities.

Other programs have tailored services to special populations by embedding the technology access site within existing programs. For example, the Jewish Vocational and Career Counseling program offers individualized assistance for participants from local service organizations, providing workshops on computer literacy and career readiness topics. In addition, it has a well-developed internship and job placement program and offers many career skills programs: office technology and communications, office technology and Internet skills, computer-aided drafting, Web design, Vocation English as a Second Language (VESL), hospital unit coordinator/clinic assistant, human resources,

and UNIX programming and Cisco networking technology. Many of the programs are designed for special populations, including the chronically ill, refugees, the disabled, or those transitioning from welfare to work. The International Institute of Greater Lawrence in Lawrence, Massachusetts, is embedded in existing programs that help immigrants, refugees, and limited-English-speaking people integrate into the economic, political, and social culture surrounding them. Likewise, the Children's Aid Society of New York established a CTC program within existing community service organizations. The goal is to fully integrate the use of technology with all other programs; the East Harlem, Dunlevy Milbank, and Frederick Douglass centers provide a full range of human services, and Taft center focuses on technology, educational enrichment, and job readiness.

Importance of Community Partnerships

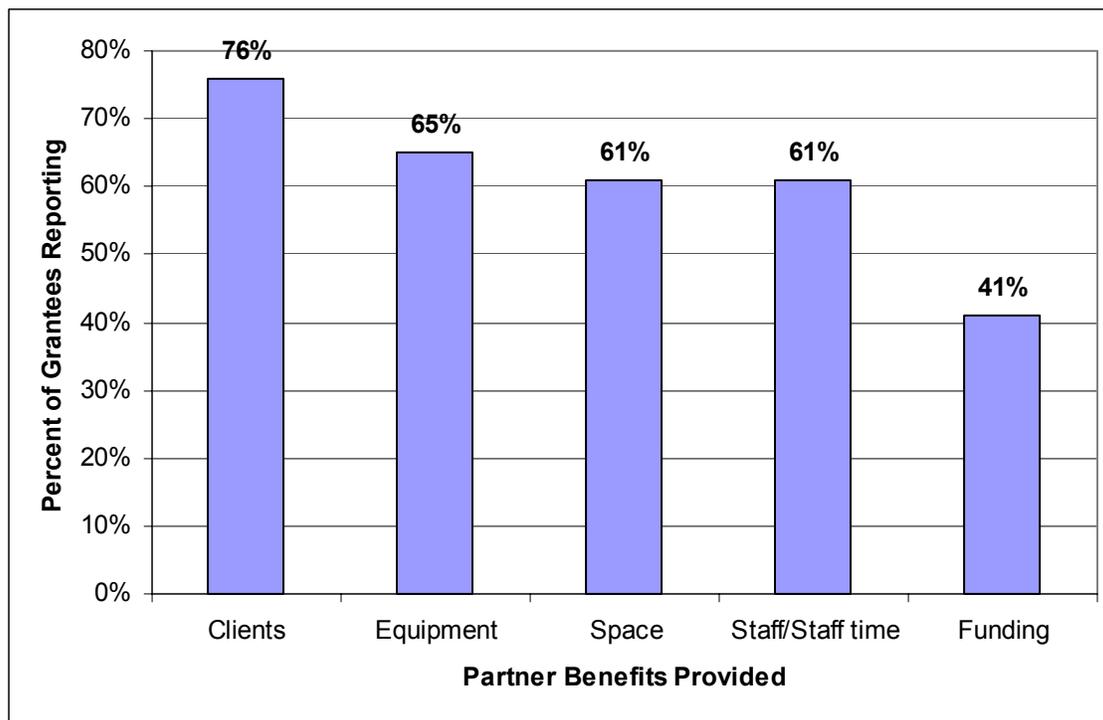
CTC Program grantees are required to partner with one or more organizations because these partnerships will play a pivotal role in the sustainability of their programs. SRI researchers coded grantees' APRs both for partnerships explicitly noted and for partners easily identified by the coder. Of 114 APRs reviewed, 107 included mention of partnerships; only 7 grantees did not report any information about partnerships. On average, grantees had 9.9 partners. Table 12 shows the number of grantee partners, by organization type.

Table 12. Grantee Partners, by Type of Partner Organization

Type of Partner Organization	Number of Reported Partnerships
Community-based organizations	368
Public schools	139
Government agencies	125
Universities and colleges	91
Local affiliates of large businesses	81
Local small businesses	75
Faith-based organizations	46
Libraries	23
Foundations	13
Private schools	3
Other	7

In addition to coding data on types of partner organizations, SRI researchers looked for data on the benefits the partnerships provided to CTCs. The benefits reported by grantees can be strongly linked to program sustainability, which will be further discussed in the final chapter. In particular, partners that provided funding and professional development for staff and volunteers appear to be important in program continuation and replicability. The main benefits of partnerships to grantees were participants, equipment, funding, space, and staff. As shown in Figure 7, more than three-quarters (76%) of grantees reported partnerships that provided a source of participants. Almost two-thirds reported receiving equipment (65%), space (61%), and staff (61%). Fewer than half (41%) reported funding as a benefit obtained from partnerships formed.

Figure 7. Grantees Reporting Types of Benefits from Partnerships



Progress in Developing Model Programs

Compared with Year 1 APRs, in which minimal outcome data were reported, in Year 2 APRs more grantees reported on client satisfaction and program-independent outcomes. At the same time, few reported on their specific evaluation designs, making it difficult to infer from reports of outcomes whether participation in CTC programs caused improvements in outcomes. As noted in Year 1, individual grantee evaluation plans varied widely, with some reporting plans to use many evaluation methods and others not reporting any evaluation plans. Year 2 APRs suggest that most grantees started collecting participation data, but fewer are collecting data on the impact their programs are having.

Increasing emphasis on evaluating programs may help grantees further articulate the needs of the communities they serve and the impact they expect their programs to have on those needs. In relation to goals, grantees should report outcomes in terms of both current levels of participation and achievement, and future potential.

In Year 2, 39 grantees presented evidence of programs involving participants as authors of technology, 72 presented some form of evidence of effective technology-supported

programs, and many presented evidence that the need to develop sustainable and replicable programs was being addressed. Partnerships are one way the programs can be sustained, and in Year 2, the average number of partners per grantee rose to 9.9 from 5 to 7 partners in Year 1. The diversity of types of organizational partners continued, with community- and faith-based organizations, businesses, government agencies, schools, libraries, and colleges and universities all contributing to the activities of the CTC Program.

Meeting Challenges

Many grantees made great strides toward meeting the goals and objectives they identified in their proposals. Some FY99 grantees also expanded and refined their programs in their second year of funding. At the same time, some FY00 grantees faced challenges that compromised their ability to fulfill their proposed program goals in their first year of funding. Issues with securing space, acquiring and setting up equipment, hiring and keeping staff, and making design decisions for programming were the most salient concerns reported by grantees.

Among the most common causes of delays in implementing programs were staffing challenges and space issues. Some sites had difficulty hiring qualified staff with the technical expertise required to teach certain classes. Some sites had high levels of staff turnover, which had an impact on service delivery. Still other sites had a high participant-to-staff ratio, so that loss of one staff member taxed the remaining staff, compromised programs, and took away time for planning and staff professional development. In terms of space and equipment problems, some grantees either could not locate suitable space as quickly as thought or were delayed by renovations to space obtained. Other grantees had not correctly predicted how long the hardware setup would take, particularly in rural sites. At times, even basic connections, such as electrical outlets for plugging in computers, were not ready on schedule. In most of these cases, grantees reported that delayed plans would be implemented in Year 3 of the CTC Program.

For some access sites, location was also problematic. Participants of CTCs are those people who otherwise would lack access to technology, and this group also tends to lack private transportation. Therefore, if the access site is not within walking distance of participants' homes or if no efficient and inexpensive public transportation is available, the intended participants may not be able to get from home to the site. This is particularly true of sites in rural areas. In some cases, grantees have been able to find funding for a van that can pick up and drop off participants. Others have equipped a truck or van as a mobile CTC to bring access to the participant. Nonetheless, all transportation needs cannot be anticipated, as was the case with one site. Seniors are one group of participants using the site, but fewer seniors than hoped are taking advantage of the technology access

because they are concerned about using the elevator to go to the site's third-floor location. The grantee reported that they may resolve this problem by placing a computer workstation where elevator use will not be necessary.

Beyond the physical challenges of locating and equipping a site, and ensuring that the intended participant can reach the site, some grantees found that they faced philosophical challenges in determining what kind of programming to implement. Program decisions are influenced by the extent to which the grantee envisions itself as fulfilling particular roles. Some of the roles that grantees have articulated in their proposals and reports are technology training, youth development, and pedagogy to improve academic achievement. Some grantees may have multiple sites, each fulfilling one or more roles. Others may have only one site with one role or identity. A finding from the Year 1 case studies was that the formation of a CTC can be constrained by this initial establishment of an identity. For example, a site that sees itself as providing pedagogy to improve academic achievement may determine that hiring a certified K-12 teacher is a priority, whereas a site that sees itself as a technology trainer may make its first priority the implementation of technology certification courses. The proposal process can help grantees and their partners clearly establish the role or identity of access sites, but at times, many of these decisions are not clear to site leadership, and effectiveness of program delivery can be compromised, particularly in the short term.

Conclusions and Recommendations

CTC Program grantees reported extensive progress in Year 2. In particular, the majority of grantees opened their new and expanded sites as planned or with short delays. Most grantees also began program implementation, but many found that the first steps of physically opening sites took more time and resources than expected, so that many programs planned for the Year 2 funding will not be launched until Year 3 funding. Undoubtedly, these first steps are proud accomplishments, but grantees have much work ahead to demonstrate an impact on the learning outcomes of participants and to develop model programs that are sustainable and replicable. This chapter presents conclusions drawn from SRI's 2 years of program evaluation, and recommendations aimed at guiding grantees in achieving their goals and reporting participant outcomes and program impacts.

Summary of Findings

APRs from both FY99 and FY00 grantees indicate progress on the proposed GPRA objectives and indicators. Reflecting grantees' focus on establishing sites during the early days of funding, APR data were most complete on the first objective, increasing access to technology for communities that otherwise would lack access. Year 2 APRs included much more data than Year 1 APRs on the second GPRA objective, providing educational services, but not all grantees provided information in ways that proved useful for evaluating the CTC Program. Standardized reporting of programming at access sites would contribute to the cross-site analysis. The third proposed GPRA objective, developing model programs, does not yet appear to be an area of focus for many grantees' reporting, even if grantees are achieving significant outcomes with participants, as our case studies suggest. Although some APRs provided evidence that grantees are developing programming that is consistent with designs of effective CTC programs elsewhere, these APRs tended not to state specifically that the programs described could serve as models.

The CTC Program in Year 2 continued to provide programming to communities in need, ranging from inner-city neighborhoods to farming communities and Native American reservations. Almost half of grantees provided services in urban empowerment zones or enterprise communities. School-age children and adults were the primary

participants served, with some sites providing programming directed at seniors or families. Most sites offered a range of programs, with basic computer literacy and open access predominating. Educational programming included basic computer literacy for two-thirds of grantees. Almost half of grantees had programs directed at improving educational attainment for children and adults. Almost half also had programs directed at improving career attainment for adults. One in 10 grantees reported programs for external certification of technical skills, such as software use and network maintenance.

Grantees provided evidence that programs targeted to serve the specific needs of their communities were having a positive impact. In terms of access, grantees reported high levels of attendance at their sites. Enrollment in courses and programs met target levels in most cases. Some grantees also measured the impact of courses in terms of number of graduates. Although not quantified by grantees, there were many reports of positive impacts on attitudes at both community and personal levels. The CTCs contributed to a sense of cohesion and empowerment within communities; participating in CTC programs helped many individuals gain confidence and seek new educational and career opportunities.

Toward Evidence-Based Program Design

Data from grantees suggest that the establishment of CTC programs typically involves a sequence of phases. The first phase is the physical establishment of technology access sites, be they new storefront locations, enhancements to existing CTC facilities, or vans equipped as mobile access sites. In building and opening a CTC, grantees are building the foundation for meeting the first of the program's central objectives, providing technology access. With the infrastructure in place, grantees then begin to focus on program delivery. By using existing or newly collected data on the communities they serve, grantees work to ensure that programs meet the needs of intended participants in almost all cases. In some cases, grantees may offer programs that are not well attended and discover that they have misjudged the needs of their participants.

In practice, nearly all grantees have noted these challenges and adjusted their approach successfully, as indicated in their APRs and in site visits we conducted at six sites last year. In this respect, grantees are already well on their way to using informal evidence to guide

their program design. At the same time, moving toward a focus on results will require that grantees also use formal program data—such as attendance data—to adjust the kinds of programs they offer, and formal and informal outcome data—such as satisfaction rates, measures of academic achievement, or job placement rates—to guide program development. They will need assistance in learning how to collect and analyze these data from the America Connects Consortium, SRI, and their peers. Several grantees are already using such data to guide program decision-making or are developing tools to aid their work. For example, at the Rochester Museum & Science Center in Rochester, New York, the program’s evaluator has developed a database to help the program staff track participation in programs and program satisfaction that is used by program staff to inform their decision-making.

Grantees can also benefit from using prior research on CTCs to develop programs. Below, we discuss the importance of ongoing tailoring of programs to meet the specific needs of the participants in CTCs and the communities in which they live, as well as how programs can use partnerships to build effective links to existing services in the community.

Tailoring Programs to Participants and Their Communities

Part of meeting the needs of intended CTC participants requires tailoring programs. For instance, career skills programs may be offered at many sites, each case may have differences in participant needs that must be considered. Tailoring programs involves factors such as knowing what participants need to learn, when they can attend programs, and the barriers they face in attending programs.

Grantees tailored their programs to participant needs by offering intergenerational and family opportunities, serving narrowly defined or special populations, using a holistic approach, and embedding services within existing community-based programs. Each of these approaches was designed to ensure that needs specific to target participants were addressed. Intergenerational and family programs addressed child care needs and enabled parental involvement in their children’s learning activities. Narrow definitions of participant groups, such as particular groups of immigrants, increased the potential for impact on participants’ lives. Identifying and providing a range of services to the same

participant group in a holistic manner reduced the likelihood that piecemeal efforts would diminish the impact of their services. Similarly, embedded services strengthened the possibility of improving participants' lives by working within an established community agency that had a relationship with the participant.

The Community College of Southern Nevada opened two new access sites for residents of the lowest-income areas in Las Vegas. One site is located at Nevada Partners, Inc., a community-based organization that provides job development services. Participants taking job readiness classes at Nevada Partners will now have access to computers and the Internet for further job preparation. The other site is at the A.D. Guy Education Center. The College has involved other agencies at the A.D. Guy Center, and these agencies also refer participants to the CTC. For example, the Family Resource Center provides family counseling, clothing, and vouchers for food, child care, and transportation. By working together, the A.D. Guy Center and the Family Resource Center provide a full package of services to those in need.

Benefits of Integrating Sites with Existing Services

A noticeable feature of some grantee sites in Year 2 APRs was the integration of the sites with existing community-based services. That is, these grantees did not open CTCs as stand-alone services located in their own facilities. Their sites were augmentations of services, such as career development organizations, already serving the participants. In these cases, adding access to technology to existing services offered the opportunity to further meet participant needs.

Both stand-alone sites and those integrated within existing services offer needed programs and services to their participants. One factor in whether access sites are integrated may be the maturity of services in a community. For example, the Children's Aid Society in New York is a grantee that was itself an existing service provider at the time that it became a CTC Program grantee. In comparison, many grantees formed consortia for the specific purpose of developing CTC programs in their communities.

There may be benefits to program delivery when sites are integrated with existing services. This approach lends itself to ensuring that participants receive a full suite of services. For example, the Children's Aid Society aims to integrate technology with all of

its other services, such as its after school, Saturday, adolescent, drug prevention, and health programs. Grantees that were not existing service providers cannot similarly integrate technology, but they do tend to partner with organizations that provide services to the same groups of participants. These partnerships help ensure that service providers and participants become aware of the spectrum of services available. In that sense, even the stand-alone sites are integrated with other services. The difference appears to be in the additional efforts required for stand-alone sites: they must devote more time and energy to finding partners, asking other service providers to provide participant referrals, and becoming recognized in the community.

Progress in Reporting Data for Program Accountability

A scan of the organization and contents of Year 2 APRs suggests that about two-thirds of grantees made full or partial use of the APR template (Appendix) SRI developed at the end of Year 1 of the evaluation. The most frequently used element of the template was the approach to listing grantee sites and the technology available at each. The least frequently used elements of the template were those pertaining to programs and their effectiveness. It is possible that grantees did not follow the template in reporting program data because they had not collected these data. Case study visits to several sites should provide more information about grantee perspectives on the use of the template and additional evidence of program effectiveness.

Few programs were able to report on the indicators in the third proposed GPRA objective, the development of model programs. Partly at issue is the level at which grantees view their role in developing model programs, compared with the level of responsibility reflected in the proposed GPRA objective. To date, grantees have viewed their primary role as one of providing the most basic and essential programs needed by their target participant populations. This means, for example, that the typical program developed for adult basic education addresses the kind of content that would be included in tests of adult literacy and content knowledge. The kinds of model programs set out in the GPRA go beyond meeting basic educational needs to empowering participants as authors of technology; in addition to reporting data on these indicators, grantees may also need to align more closely their own program goals with these objectives. Similarly, the

issue of program sustainability was not widely addressed by grantees. The issue will rise in importance as grantees enter their third year of funding with the program. How are sites supporting participants in producing technology content for the “real world”? Are grantees developing replicable curriculum, training, programs, professional development, and tools and methods for evaluating the effectiveness of technology-supported programs? Are sites able to report outcomes from the services they provide that show potential funders the value of their programs and potential for refinement and expansion?

Recommendations

With the increased emphasis on demonstrating results, grantees in the CTC Program will need support in Year 3 to increase the reporting of evidence that the program is meeting its key objectives. This evidence will also be useful in finding partners, who will be critical in providing sites with funding that will allow them to sustain themselves after their grants from the U.S. Department of Education have come to an end.

Our recommendations at this time do not focus so much on improving the program, but rather on advising the U.S. Department of Education on reporting requirements for grantees. Our overall outcome evaluation report, to be submitted in early fall 2002, will provide recommendations for improving the program. Regarding program reporting, we recommend the following:

- **Standardize program reporting.** Grantees need and, judging from our experience with the APR template, are likely to use tools to help them standardize the data they report. We believe the online self-study tool SRI is developing will greatly assist in ensuring that all grantees report data on all three key program objectives.
- **Provide clear definitions for reporting the number of participants.** Among the most challenging data to interpret for this report were overall participation rates for programs. Few programs provided an unduplicated count of the number of participants; most reported on other kinds of attendance data, such as total participant hours. SRI will need to provide grantees completing the self-study tool with a clear definition of the most important attendance data to calculate. We will work with the Department of Education to arrive at a common definition of the

number of program participants and ensure that this definition is clearly communicated to grantees.

- **Define opportunities to support grantees in reporting on program-independent outcomes.** In Year 3, grantees should be specifically encouraged to report evidence of the impact of educational services on learning and to show how the services have that impact with program descriptions. Other programs should report on goals relevant to their own program objectives, such as placing people in jobs or contributing to their community's economic development. Measuring impact is not easy, but there are several resources to help grantees find tools to measure outcomes on the America Connects Consortium Web site (<http://www.americconnects.net>). We encourage grantees to visit the site and work with local evaluators to report on these data.
- **Highlight educational services.** Grantees may have their own models for how specific educational services contribute to program outcomes. By reporting evidence of the impact of educational services on learning and sharing what grantees see as the key program features that contribute to those outcomes, researchers can develop more specific studies of best practice, based on investigations into the experience of practitioners.
- **Share knowledge of model programs.** Use descriptions of model programs to guide other grantees in developing similar programs.
- **Increase emphasis on reporting sustainability of programs.** As FY99 grantees approach the end of funding through the CTC Program, ways to sustain their sites through other means of support need to be identified and shared.

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Appendix: Annual Performance Report
Template
