National Telecommunications and Information Administration

Broadband Technology Opportunities Program Evaluation Study

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Case Study Report

Round 2

Florida Agricultural and Mechanical University

Public Computer Center

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Executive Summary

> *"At the foundation of the CPCWD conceptualization was the idea of a project that would increase accessibility to training and make technology resources available to the citizens and businesses of North Florida in order to improve economic development and employment opportunities." – CPCWD Project Director*

Florida Agricultural and Mechanical University (FAMU) is a historically black university founded in 1887 in Tallahassee, Florida, as the State Normal College for Colored Students. Today, FAMU is the only historically black university in the eleven-member State University System of Florida.[1] FAMU is a land-grant institution that provides undergraduate, graduate, doctoral, and professional degree programs. FAMU focuses on innovative teaching, research, and public service programs, enhanced by informational and instructional technology and distance learning.[2]

On September 30, 2010, the National Telecommunications and Information Administration (NTIA) awarded FAMU a Broadband Technology Opportunities Program (BTOP) Public Computer Center (PCC) grant for $1,477,722 to implement the Center for Public Computing and Workforce Development (CPCWD) project. The goal of this project was to establish a new PCC and provide workforce training focused on industry certifications, education, and virtual learning services to student and nonstudent populations.[3]

The project experienced a fifteen-month delay because of unanticipated problems with construction. FAMU was required to gain clearances to fulfill the requirements of the American National Historic Preservation Act Special Award Condition (SAC) that imposed a restriction on the expenditure of the grant funds necessary to begin construction. FAMU received approval to proceed with the use of federal funds to construct the PCC at the M.S. Thomas Building on the FAMU campus on February 14, 2011. The project also experienced delays because of unanticipated problems with construction, including addressing code requirements concerning the removal of flooring and potentially hazardous materials in the building.

The project serves three counties in northwest Florida: Leon, Gadsden, and Jefferson. Nearly 35 percent of the population in the service area identifies as African American, a rate more than double that of the state and almost three times the national average.[4] Nearly 20 percent of households have incomes less than $25,000.[5] The project focuses on the most economically and socially vulnerable populations in Tallahassee: the unemployed, underemployed, students, youth, veterans, and seniors. Grant funds provide digital literacy training, business training courses and certification, and technology training for small and disadvantaged business owners.

The FAMU project proposed the following, with the results shown:

- Use videoconferencing technology to provide business development training and counseling services, including workshops for small businesses with an emphasis on minorities, women, and veterans. As of March 2013, ten participants had received training in the Florida Department of Construction Management and Bond Guarantee Program using CPCWD videoconferencing technology.[6]
- Develop and expand FAMU's current instructional capacity through a "train-the-trainer" workshop program that includes content creation and trainer identification and recruitment. By the second quarter of 2012, FAMU had enrolled and trained fifty student volunteers and interns.[7]
- Provide new workstations, upgrade support technology and access speeds, and decrease waiting times to enable access for additional users and expand the number of hours the public

can access public computers. As of December 2012, FAMU had installed 77 workstations and 3 laptops with broadband speeds of 25 Mbps, and provided nearly 39,000 training hours to 28,631 individuals.[8]

- Provide teacher-led training for residents that cover topics important to the Northwest Florida region, including public administration, education services, healthcare, social assistance, agriculture, forestry, and fishing and hunting. FAMU reported 25,996 hours of training through December 2012.[9]

This case study is one of fifteen performed by ASR Analytics, LLC (ASR) on a sample of eight PCC and seven Sustainable Broadband Adoption (SBA) grants. It is part of a larger mixed-methods evaluation of the social and economic impacts of BTOP.

The purpose of this case study is to:[10]

- Identify how the grantee maximized the impact of the BTOP investment.
- Identify successful techniques, tools, materials, and strategies used to implement the project.
- Identify any best practices, and gather evidence from third parties, such as consumers and anchor institutions, as to the impact of the project in the community.

This report further investigates the initial impacts reported by the grantee during the first round of visits and identifies additional impacts that occurred in the time between the site visits. The results presented in this report reflect the evaluation study team's observations at the time of the second site visit. This report includes both qualitative and quantitative components. It will serve as a basis for *Interim Report 2*, which will analyze data from fifteen case studies.

ASR collected the information presented in this report during two field visits to evaluate the social and economic impacts of the grant. The evaluation study team originally met with representatives from FAMU over a two-day period in November 2011, visiting administrative offices, project partner offices, and the site of the planned FAMU CPCWD. ASR conducted a follow-up site visit with the grantee, project partners, and individual users from June 4-6, 2013, including Data Set Ready, Inc., Carney Solutions, Apalachee Ridge Technology Learning Center, and Love and Faith Community Church.

The evaluation study team performed a total of five site visit interviews and focus groups. ASR transcribed the discussions and used this information, and other data and reports provided by the grantee, to supplement Quarterly Performance Progress Reports (PPR), Annual Performance Progress Reports (APR), and other publicly available information. This case study is primarily qualitative. The grantee tracks the number of user sessions, the number of participants trained, and the number of training hours per course. The grantee informed ASR that they would implement a user survey to measure the impacts of the program. FAMU hired an evaluator to carry out the program assessment. The evaluator has developed a survey instrument and established the types of data to collect. A date has not yet been set to implement the user survey at the CPCWD.

Five components of the CPCWD project provide the most significant benefits to users: workforce development and training; access to new computer workstations; interactive video teleconference technology using a Cisco TelePresence infrastructure and audiovisual (AV) equipment; digital literacy training; and access to FAMU staff and resources. According to FAMU, broadband access, workforce development skills, and digital literacy skills are important for meeting its goals of providing training to the workforce and strengthening the employability and competitiveness of the target population.

The evaluation study team noted the following major outcomes and impacts of the project:

- FAMU collaborates with the Small Business Development Center (SBDC) to provide virtual training teleconferencing technology for the Construction Management Development Program. The virtual technology enables minority and small business owners who live in cities near

Tallahassee to participate in the training. Ten business owners in three Florida counties who would otherwise not have had access to the program completed the training. Users gained valuable skills in technology applications that increase business operations and profits. Six of these business owners received certification through the Construction Management Development Program, which improves their competitiveness in bidding on Florida Department of Transportation contracts. The certification enables businesses to receive a small or disadvantaged business designation from the State of Florida. One business owner who completed the course obtained a contract with the Florida Department of Transportation (FDOT) to perform lawn service, which he would not have received had he not completed the training and obtained the certification.

- Entrepreneurs use the computer center to operate their small businesses and sustain or increase their incomes. These patrons do not have office space or the resources to manage their business. The grant enabled the entrepreneurs to have free access to a computer, printer, fax, and telephone to complete business-related activities. Staff members assist small business owners in the development of skills to enhance their businesses. For example, one patron learned how to create letterhead, design business cards, and build a website for her business, which increased her presence online. Her business grew from three clients to seven during the time she received training and assistance at the computer center. One entrepreneur who uses the computer center received a contract to retrofit five rental apartments with heating, ventilation, and air conditioning (HVAC) systems. As business owners become more successful, they use the center less frequently or stop using the resources completely.
- The center offers courses and technology workshops where instructors teach skills for using more than thirty computer and Internet-based tools for academic success to students at FAMU and online. The courses focus on three primary areas to help students become job-ready: organization skills, conducting research, and presentations. Topics include the Google platform, Evernote, PowerPoint, and group collaboration for conferencing online.
- Staff reported that approximately fifty students had volunteered at the computer center through the Student Volunteer and Internship Training Program (SVIP). Students are required to obtain one certification and gain skills in course instruction. The internship was influential in the students' career choices and academic paths. One SVIP participant secured a position with Microsoft Corporation after graduating from FAMU. She found the CPCWD's resources beneficial during her transition into the workforce. The participant also helped the FAMU Black Executive Exchange Program receive advanced training in Microsoft Excel at the CPCWD. Another former intern completed a degree at Full Sail University in Orlando, Florida, with a specialization in advanced audio and video engineering.

The BTOP grant was essential for achieving these impacts. Although FAMU experienced a fifteen-month delay in the grant implementation, the program expanded broadband access to the target population in Tallahassee and the surrounding areas. The grant enabled FAMU to expand operations and provide a range of services to business owners, entrepreneurs, students, children, and the unemployed that were not available at the FAMU library or public libraries. As discussed in this report, FAMU's focus on establishing a computer lab and expanding training options was a key part of enhancing student and nonstudent services and achieving the benefits described.

In August 2013, NTIA approved an extension of FAMU's grant period to September 30, 2014. This will allow for the complete implementation of the project and extend the benefits described in this report to more students, businesses, and other target audiences.

Section 1. Introduction

Florida Agricultural and Mechanical University (FAMU) is a historically black university founded in 1887 in Tallahassee, Florida, as the State Normal College for Colored Students. Today, FAMU is the only historically black university in the eleven-member State University System of Florida.[11] FAMU is a land-grant institution that provides undergraduate, graduate, doctoral, and professional degree programs. FAMU focuses on innovative teaching, research, and public service programs, enhanced by informational and instructional technology and distance learning.[12]

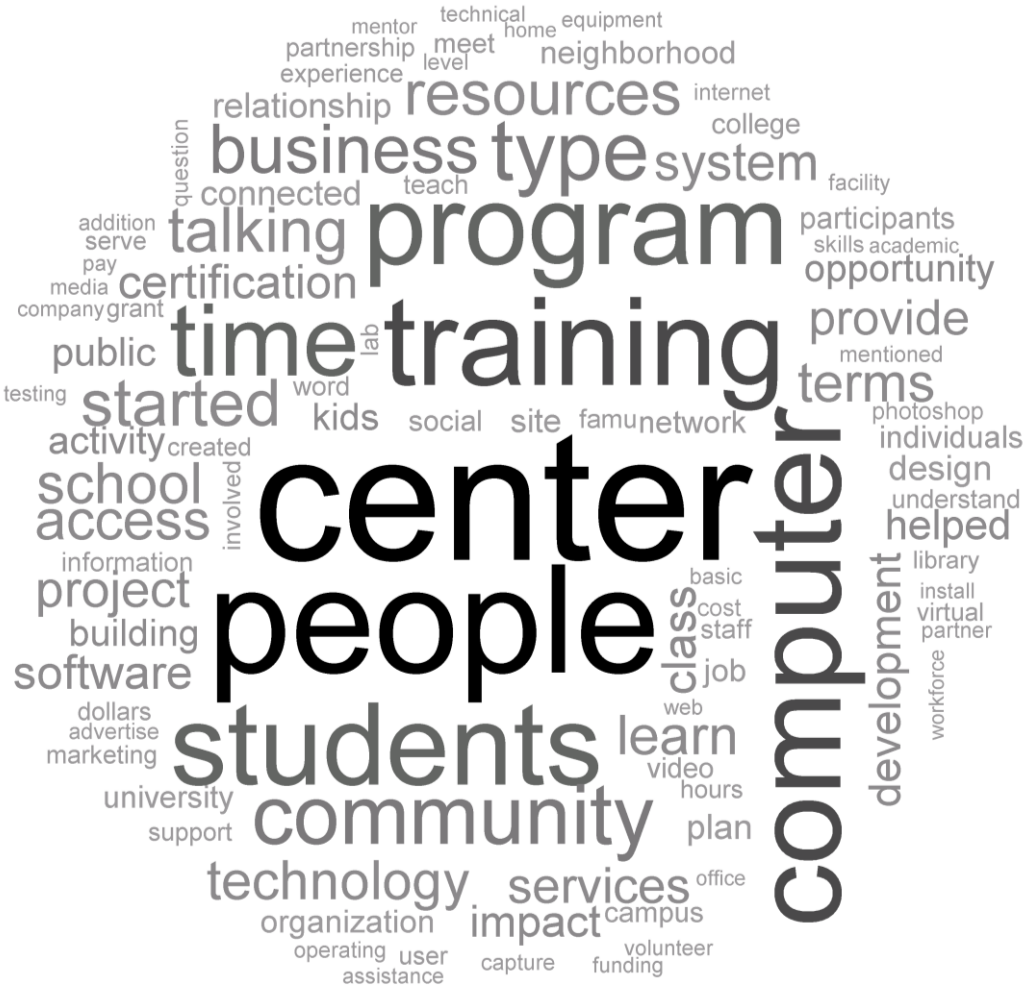
On September 30, 2010, the National Telecommunications and Information Administration (NTIA) awarded FAMU a Broadband Technology Opportunities Program (BTOP) Public Computer Center (PCC) grant for $1,477,722 to implement the Center for Public Computing and Workforce Development (CPCWD) project. The goal of this project was to create a new PCC and provide workforce training focused on industry certifications, education, and virtual learning services student and nonstudent populations.[13]

1.1 What the Interviewees Told Us

Figure 1 displays words interviewees frequently used during the site visit. These five interviews included program management, staff, and partners. The word cloud displays the 100 words interviewees used most frequently. The purpose of the word cloud is to provide a succinct visual summary of the conversations that occurred. Statements made by ASR personnel during the interviews and focus groups were excluded from the analysis, as were common words, such as prepositions, articles, and conjunctions, which were identified using a standard “stop list.”

The words used most frequently include “people,” “program,” “center,” and “computer.” The words emphasize the project’s goal to provide broadband access to the target population, which includes low-income individuals, the unemployed, the underemployed, business owners, students, and veterans. Other significant words give emphasis to “class,” “training,” and “organizations,” which reflects discussion about training courses and industry certification for small and disadvantaged business enterprises, entrepreneurs, and individuals. Discussions include plans to provide virtual training to residents of the Tallahassee Housing Authority (THA), churches, and community and neighborhood organizations.

Figure 1. Words Interviewees Used Frequently



Section 2. Impacts

The most prominent impacts of the FAMU project are in the focus area of Workforce and Economic Development. In the one year that the CPCWD was open, FAMU made computer access available to more than 28,000 individual users in Tallahassee.[14] FAMU provides virtual training to participants located in cities outside of Tallahassee, including the target counties in Florida of Gadsden, Jefferson, and Leon. The grantee tracks the number of user sessions, the number of participants trained, and the number of training hours per course. The grantee informed ASR staff that they would implement a user survey to measure the impacts of the program. FAMU hired an evaluator to carry out the program assessment. The evaluator has developed a survey instrument and established the types of data to collect. A date has not yet been set to implement the user survey at the CPCWD.

The trainers provide classroom and one-on-one instruction to help patrons learn how to use computer programs, navigate the Internet, complete workforce development courses, and use video and digital media to help market their businesses. Examples of the accounts provided by FAMU staff and patrons include the following:

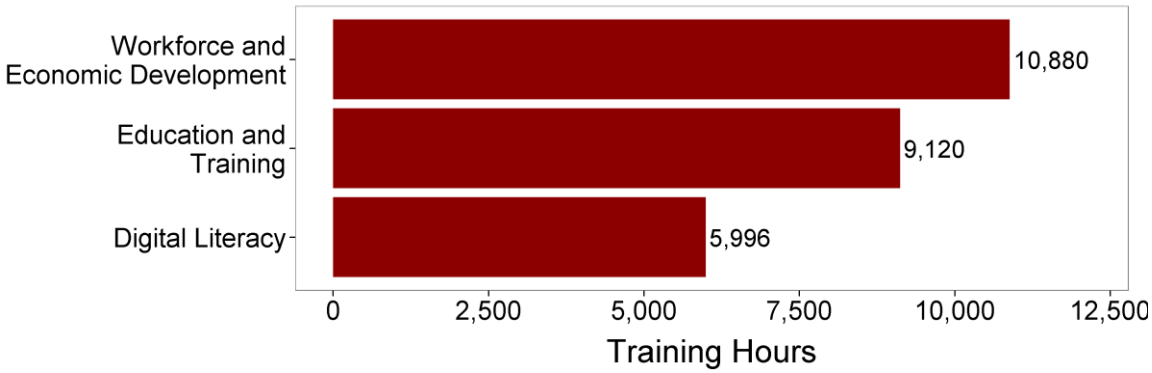
- "If we didn't have this vehicle to allow us to do teleconferencing, they [business owners] would have to drive long distances, which would cost gas, time, and so forth."
- "I learned how to develop a website. I didn't know how to do that. Now that's a part of my business I can offer. People are asking me to build their website and I couldn't have done it without the trainer's help."
- "I moved from Raleigh and I had my business, but I didn't do as much. I had three clients and now I have seven since I've been at the center. My business has grown because I've learned how to do more on the computer and I can offer more to my clients."
- "Without this center, I don't see growth in my nonprofit. Anybody starting a nonprofit from the ground up, without already having some financial support in place, knows it is hard, especially when you're promoting spirituality and righteous living rather than a child's program or one for battered women. I thank God for it and the people because this has really been a blessing for our organization."

2.1 Focus Areas

This section describes the impacts of the CPCWD project in terms of five focus areas. ASR tabulated the training hours for FAMU reported in the 2012 Annual Progress Report (APR) using the focus area categories described in *Interim Report 1* to analyze where impacts should be found.[15]

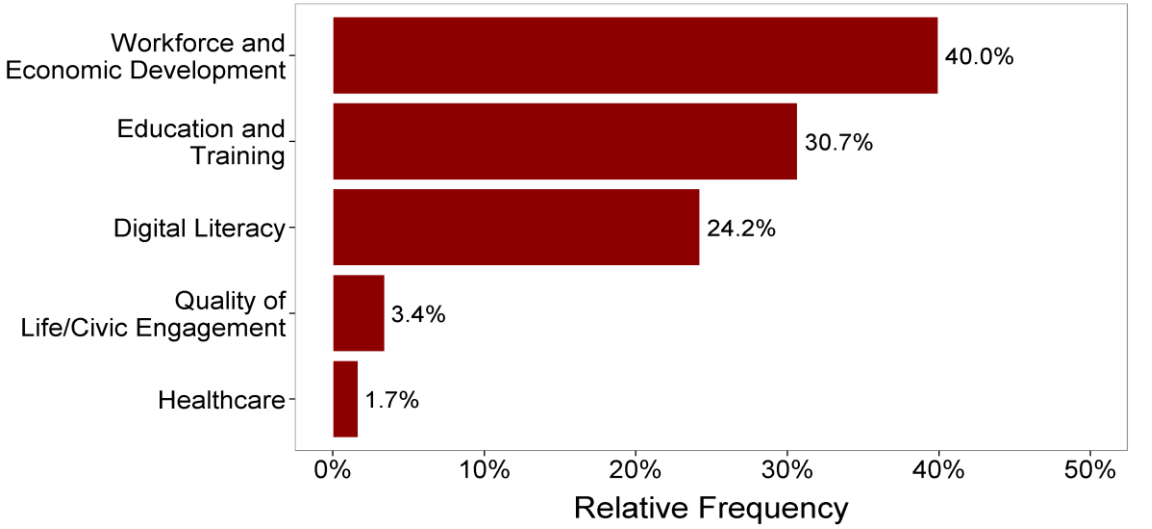
FAMU reported 25,996 hours of training through December 2012, in addition to 12,972 hours of open-lab access.[16] Figure 2 shows that FAMU dedicated 42 percent of their training hours for small and disadvantaged businesses using on-site and virtual training and office skills courses in the focus area of Workforce and Economic Development. Education and Training accounted for 35 percent of the training, which included technology certifications and activities completed by participants in the Student Volunteer and Internship Program (SVIP). Digital Literacy was 23 percent of the training hours provided and included courses in basic Internet and computer use and Microsoft Office.

Figure 2. Grantee Training Hours Categorized by Focus Area



ASR analyzed the statements grantees made during the interviews and categorized them based on the focus areas, as shown in Figure 3. Approximately 40 percent of the grantee responses referenced Workforce and Economic Development, which was the largest category. Education and Training represented 31 percent of the grantee responses.[17] Digital Literacy reflected approximately 24 percent of the statements made by FAMU staff. The time interviewees spent discussing these topics is similar distribution of training hours. The Quality of Life/Civic Engagement and Healthcare focus areas combined represented less than 5 percent of the grantee discussions. The summaries presented in these two figures emphasize that FAMU's workforce training activities focused on certification programs, education services, and virtual learning opportunities to student and nonstudent populations.

Figure 3. Focus Area Statements Made by Interviewees



2.2 Workforce and Economic Development

> *"The training I've been getting here has been critical. As the CEO, your time is limited. So if you can do something quick and move on to the next task, then that's key." – PCC User*

Workforce and Economic Development includes activities to increase the overall employment of the target population, or to assist employed members of that population in finding jobs that offer

increased salaries, better benefits, or a more attractive career path, including self-employment. Workforce and Economic Development activities can be performed for one's own benefit, or may be done on behalf of another person to assist with his or her employment situation. In order for project activities to be included in this category, it must be the intention of the grantee to assist members of the workforce in improving their employment outcomes, and project resources must be devoted to this purpose.

The computer center serves as a technology resource partner to economic development organizations, FAMU departments, city agencies, and the citizens of Tallahassee. The staff members are building a more digitally literate community with public access to broadband and technological resources. The project funds access to Workforce and Economic Development training programs to increase business opportunities and profits, industry certifications for small and disadvantaged businesses to obtain contractual work, and employment training for individuals.

Outcomes and impacts related to Workforce and Economic Development include the following:

Employment Training. The CPCWD provides users with training in career planning, résumé building, negotiating skills, and interviewing skills to prepare users for employment. The staff members also offer one-on-one assistance to job seekers. The CPCWD staff assisted a patron who needed help applying for a job online. Staff provided one-on-one help with setting up an e-mail account, accessing the job website, and applying for the job online. FAMU staff reported instances of patrons obtaining employment, but did not have a tracking system in place to document this number.

Expansion of Entrepreneurial Businesses and Job Opportunities. Entrepreneurs use the grant-funded workspace and resources for operating their small, private businesses to sustain or increase their income. These patrons do not have office space or the resources to operate their business independently. At the CPCWD, entrepreneurs have free access to a computer, printer, fax, and telephone. CPCWD staff assisted small business owners in developing skills to enhance their businesses and increase profits. Examples include the following:

- One entrepreneur who uses the CPCWD received a contract to retrofit five rental apartments with heating, ventilation, and air conditioning (HVAC) systems.
- A small business owner learned how to create letterhead, design business cards, and build a website for her business with assistance from the CPCWD trainers. The website increased her presence online and helped to increase her client base. She used the skills she developed to build websites for other business, which increased her clients from three to seven. She expects her business to continue to grow with the development of new skills she is learning at the CPCWD.
- An entrepreneur who used the computers and technology at the CPCWD to seek business opportunities obtained a contract with the federal government. Two patrons who were using the CPCWD regularly obtained business contracts.
- One patron has a construction business and uses the CPCWD an average of one to two times per day to conduct business. He uses the computers, printers, and other resources to submit proposals for contractual jobs to increase his business.

Access to Small and Minority Business Training and Certification. The CPCWD collaborates with the FAMU Small Business Development Center (SBDC) to provide access to a virtual training pilot for the Construction Management Development Program, designed to assist small and disadvantaged businesses in construction and business management. The course consists of six modules over a fifteen-week period. SBDC is under contract with the Florida Department of Transportation (FDOT) to deliver the training throughout the state. Ten business owners in three Florida counties completed the training. The CPCWD and the SBDC are planning to make the recorded video trainings available online, allowing business owners to access the trainings from home.

Participants receive a certification of proficiency after successful completion of the Construction Management Development Program. Six program participants received certification through the Construction Management Development Program, which improves their competitiveness in bidding on FDOT contracts. The certification enables businesses to receive a small or disadvantaged business designation. One business owner who completed the course obtained a contract with the state to perform lawn service, which he would not have received had he not completed the training and obtained the certification.

Federal and State Partnerships. Federal and state agencies use the computer center as a venue for training and industry certifications. Examples include the following:

- Ten business owners in the bond guarantee program received financial counseling and bonding assistance designed for disadvantaged business enterprises that failed to meet the minimum standards set by traditional minimum surety bonding set by financial institutions.
- The United States Department of Agriculture (USDA) trained twelve managers over four days on implementation of a new computer application designed to improve efficiency and accountability in their unit using the CPCWD technology resources.
- The National Aeronautics and Space Administration (NASA) team trained forty-seven FAMU students on SOLAR, use of its job application system, and opportunities for professional employment.
- Staff of the THA used the CPCWD equipment and online resources to complete training on the housing management system. FAMU reported that 16 staff members participated in a three-day training program totaling 384 staff training hours.

2.3 Education and Training

> *"A priority established for the CPCWD was to provide training opportunities to those far from the center who needed training and education, but who might also have no experience using computers or little knowledge of computers." – CPCWD Project Director*

Education and Training includes activities that lead to a certificate or diploma that would typically be awarded by an educational institution, or that indicates the recipient has received training that is recognized as valuable for career advancement. Examples of certificates or diplomas include the following: community college degrees, four-year college degrees, advanced degrees, general equivalency degrees (GED), certifications in advanced software technologies such as network engineering, and other licenses or certifications that reflect knowledge of a particular subject at a level that would typically be taught at an educational institution.

Staff members reported that approximately 69 percent of the user base at the CPCWD are students who access the computers and Internet to complete coursework, take computer and Internet training, and complete student internships that increase skills for employment. Staff members believe that Education and Training activities enhance employment prospects for participants. CPCWD offered training programs and certification-related activities in a classroom setting or through video teleconferencing sessions. Teleconferencing affords CPCWD the ability to offer more training topics with instructor-led course sessions to the public.

Outcomes and impacts related to Education and Training include the following:

Completion of Certification for Advanced Software Technologies. The CPCWD is a Certiport Authorized Testing Center to provide certification exams in Microsoft Office Specialist, Internet and Computing Core Certification, CompTIA Strata IT Fundamentals, Autodesk Certified User, Adobe Certified Associate, and Intuit QuickBooks. Four CPCWD staff members are trained proctors for the Certiport testing program.[18] According to the staff, the Certiport Testing program is a viable option offered to patrons for employment and professional development.

- Eighteen applicants have tested for certifications through Certiport in Microsoft Certified Solutions Expert (MCSE), Microsoft Certified Software Engineer, Cisco Network Engineering, and CompTIA A+.[19] Staff anticipates that the number of individuals who test for certifications will increase through word-of-mouth and marketing activities, including radio advertisements, distribution of flyers, and business networking. Inquiries about the testing site continue to increase with new video presentations that advertise the program on flat screen monitors and wall-mounted displays in the CPCWD.
- Students in the FAMU Developmental Research School (DRS) train at the CPCWD on the use of AutoDesk Inventor to create three-dimensional images. The program is a collaboration among the DRS, College of Engineering, Sciences, Technology, and Agriculture (CESTA), and the CPCWD. Ten students received sixty-four hours of training. Three of the four students passed certification exams for AutoDesk Inventor.[20]

Table 1 provides a summary of certification training provided by FAMU. One hundred sixty patrons participated in 12,420 hours of training in certification and medical terminology courses at the CPCWD.[21] A little less than one-fifth of the training was provided in Adobe Certified Associate. Over one-half of the training was provided in other types of certification courses. FAMU provided 25 percent of its training in medical terminology. Medical terminology courses, which supplement health and science courses, trained users in medical language to prepare them for careers in healthcare.

Table 1. Certification Training Program Participation

Training Programs	Participants	Total Hours
Adobe Certified Associate (DreamWeaver/Flash)	30	900
Certification Training	90	9,120
Medical Terminology	40	2,400
Total	**160**	**12,420**

Completion of College Degrees. Patrons use the CPCWD to complete coursework and finish their college degrees. One interviewee reported that a patron with whom he spoke with, who used the CPCWD frequently to complete coursework and assignments, recently graduated from college. She attributes her achievement to time spent at the CPCWD, where she completed courses and assignments.

Access to Student Training and Job-Readiness Workshops. FAMU students and online users who identify themselves as students in high school or middle school take courses and workshops offered at the CPCWD. The CPCWD offers training sessions for more than thirty computer and Internet-based tools.[22] The courses focus on three primary areas: organization skills, conducting research, and presentations. Within these areas, students learn the Google platform, Ever Note, PowerPoint, and group collaboration programs. The students learn transferrable skills and knowledge that enhance their education in the classroom and helps to prepare them for the job market.

Volunteer and Internship Programs. The CPCWD provides opportunities for students to receive technological training through volunteer and internship programs. The SVIP provides FAMU students with the technology and management skills training required to support the CPCWD. Students are required to obtain certification for one software application. CPCWD staff reported that approximately fifty students volunteered at the CPCWD and were more competent and knowledgeable about technology, troubleshooting, computer software and hardware, and customer service after completing the training. Students also gained skills in course instruction. The staff reported hiring some interns after they completed training.

The CPCWD also hosts interns through Professional Opportunities Program for Students, Inc. (POPS). This program emphasizes the personal and professional development of high school students. POPS placed three interns at the CPCWD. One intern used the skills learned at the computer center to work with youth and train others to use technology while enrolled at the University of Florida. Another intern used the skills learned during the internship at the Florida State University Magnet Lab, the largest and highest-powered magnet laboratory in the world. The third intern enhanced his technology skills during the internship and planned to pursue a technology-related career in the United States Air Force.

Reduced Costs for Technology and Equipment Maintenance. FAMU instituted a staff development program by requiring instructors to complete training and certification programs. The training increases the skill and expertise level of the instructors, who are responsible for maintaining and upgrading computers, the teleconferencing system, and other technology in the center. Staff also used this expertise to install computers, program software, and maintain hardware in the center, at community technology centers, and in FAMU departments. These tasks helped the CPCWD save money, which reduces costs for the center. Three PCC staff members, one PCC volunteer, and one university Enterprise Information Technology PCC project liaison each received three Crestron Digital Media certifications, including Certified Designer, Media Certified Technician, and Certified Engineer. Crestron Digital Media certifications prepare audiovisual professionals to install and maintain digital media systems. The CPCWD uses these systems to conduct virtual training on campus and in community organizations throughout Tallahassee.

Other activities related to Education and Training include the following:

- Seven youth who participated in the City of Tallahassee Summer Youth Work Program received 12.5 hours of technology training.[23]
- Twenty-nine middle and high school students in the FAMU College Reach-Out Program participated in twelve hours of training on Internet-based tools and applications. Students used the tools to learn study techniques, how to prepare for college entrance exams, the college application process, and how to apply for financial aid. These skills prepared students for academic success in higher education.[24]
- Eighty high school students in the annual Regional Institute for Math and Science participated in a fifteen-hour program on the use of broadband, software applications, and Internet resources to increase their knowledge in math and science.[25]
- Thirty-four middle and high school students in the Black Male Explorers program participated in nineteen hours of training on Internet-based tools and applications. The grant-sponsored training builds the skills that are necessary to complete coursework, prepare for college, and enter the workforce.[26]
- Teens who participated in the Love and Faith Community Church summer iCamp took the student technology workshops developed for college students and learned programs such as Photoshop, Web Design, and AutoCAD.
- The CPCWD provides virtual training of the course offerings using Cisco Telepresence technology. The training system provides high definition virtual teleconferencing capabilities to remote participants from their desktop and laptop computers. The organization, in collaboration with the University, purchased fifty additional server-bridge based ports and licenses to increase the number of simultaneous users that can use the system. Patrons can participate in trainings and workshops from remote locations using a Cisco Jabber PC Client program that connects them to the teleconferencing system.
- Classes held in the training rooms of the CPCWD now facilitate virtual participation through the teleconferencing system by FAMU students in the College of Pharmacy. This initiative is a partnership among the FAMU Division of Enterprise Information Technology (EIT) network unit, FAMU College of Pharmacy, Cisco Inc., and Presidio Inc. Initially, the available resources and technology limited the number of individuals who could participate from a remote location to four in each class. By the second quarter of 2013, the CPCWD implemented a plan in collaboration

with the FAMU EIT and Department of Instructional Technology that increased the number of remote participants to more than 15 per class.

2.4 Digital Literacy

> *"There's been a great deal of attention to elderly individuals who have come into the center. They realized that with certain tools they could use social media to improve their ability to connect with their families and to document family relationships and achievements." – CPCWD Project Director*

The Digital Literacy focus area is fundamental to all the others. Digital Literacy defines a set of skills and abilities that enable an individual to interact with the digital aspects of culture, and to maintain a digital identity. In the National Broadband Plan, the Federal Communications Commission (FCC) defines digital literacy as "the skills needed to use information and communications technology to find, evaluate, create, and communicate information."[27]

Outcomes and impacts related to Digital Literacy include the following:

Access to Computer Training. The CPCWD offers free classes to the Tallahassee community, as well as any other community through virtual participation. The free courses include Basic Computing, iPad and Android tablet/pad Essentials, and Silver Surfers: Internet for Seniors, the Student Technology Workshop, Microsoft Office Suite, Microsoft Project, and Adobe Photoshop and Acrobat. Table 2 shows that the CPCWD had provided 1,328 patrons with 10,752 hours of training in Digital Literacy courses as of December 2012.[28] These are often individuals from low-income neighborhoods who do not have access to a computer or these applications. Patrons who completed the courses now have the skills to use social media to connect to family using Facebook and e-mail. Patrons completing the Basic Computing, Basic Internet and Computer Use, Introduction to Computers, Introduction to the Internet, and Microsoft Office Suite courses were able to use these skills to look for jobs, complete résumés, and make themselves more marketable to employers. Some patrons used their new skills to create websites, Microsoft Word documents, Excel spreadsheets, and PowerPoint presentations.

Table 2. Digital Literacy Training Programs Participants and Total Hours

Training Program	Participants	Total Hours
Adobe Photoshop	80	1,200
Adobe Premiere	80	1,200
Basic Computing	60	60
Basic Internet and Computer Use	100	900
Basic Web Design	28	112
Best Mobile Applications	60	60
Excel 2010	40	600
Introductory Adobe Photoshop	40	80
Introductory MS PowerPoint	40	80
Introductory MS Word	40	80
Library Information/User Introduction	120	120
Microsoft Project	80	1,200
Microsoft Publisher	110	440
Microsoft Visio	60	900
Office Skills Courses (Word 2010, Excel 2010, PowerPoint 2010, Outlook 2010)	20	1,060
Outlook 2010	40	320
Power Point 2010	40	600
Silver Surfers: Internet for Seniors	75	300
Technology for Business	175	840
Word 2010	40	600
Total	**1,328**	**10,752**

Computer Training for Children. The CPCWD provides technology training for children who attend iCamp in the summer at the Love and Faith Community Church in Tallahassee. The program is in its second year. Nearly 40 children who range in ages from 3 to 15 participated in 19 hours each for a total of 741 hours of training on Internet-based tools and computer applications to enhance student academic success.[29] They received training at the CPCWD on how to use a computer, a mouse, laptop, and iPad. During the summer camp, children over 5 years old complete a summer project and learn research skills, which they applied to complete their projects. The church has a computer lab that operates with donated computers where the children work during the program. The CPCWD project upgraded the computers with a current version of Microsoft Word and educational games for the children to use in the iCamp. Teleconference equipment will be installed this year, according to CPCWD staff. The program combines technology with academics. The church staff reported that the students' grades, social skills, and ability to think critically have increased. The CPCWD will offer after-school tutoring virtually through the video teleconferencing technology that will be installed in the church this year. The computer software upgrades had already been completed by a CPCWD trainer. In addition, the church has a

community outreach development center and opens the computer lab to the public every weeknight for individuals to use the technology to earn their GED or learn other skills on a computer.

Computer Training for Seniors. The CPCWD provides computer access and training to seniors who enroll in Silver Surfers: Internet for Seniors. Seniors' knowledge about computer use and navigating the Internet has increased. Seniors learn how to pay bills online and learn about computer security, particularly how to avoid certain websites. Seniors learn how to use programs such as Photoshop, which enables them to manipulate photos to send to their family. One senior learned how to use Photoshop for her granddaughter's graduation and another used it to help her granddaughter who was running for an office in school. She took the Photoshop class for three months and developed flyers for her granddaughter to use for her campaign.

Access to Staff and Resources. Patrons who use the CPCWD have access to technology-trained and certified instructors. The CPCWD staff creates a culture high in customer service, instruction, and learning. The instructors are professional, friendly, and service-driven, which makes the CPCWD an open environment for the development of new skills, knowledge, and information sharing. According to accounts from patrons, they can walk in and get an answer about technology, computers, and the Internet "from A to Z." The trainers provide one-on-one instruction and classroom instruction for courses offered at the CPCWD. Certified trainers also provide troubleshooting assistance to patrons who have technical problems with their laptops.

Social Media and Mobile Training. Users with mobile technologies such as iPads, tablets, and mobile phones receive one-on-one training to learn how to operate their devices. The CPCWD staff also created a new social media training course that teaches patrons how to navigate safely online when using social media, including Facebook and Twitter.

2.5 Quality of Life/Civic Engagement

The Quality of Life/Civic Engagement focus area includes activities that create stronger and more integrated communities, and those that promote interaction between citizens and their governments. Personalized assistance, formal training, and virtual training provide the opportunity for patrons to increase citizen knowledge of government and use of government applications for applying for programs and benefits online. Quality of Life/ Civic Engagement was not a focus of FAMU's project. However, FAMU discussed its support for the Digital Connectors Program, a youth-led technology and civic leadership initiative. The staff reported that television advertisements yielded more than 130 program applicants. Twenty-five students are admitted to the program each year.[30]

2.6 Healthcare

The Healthcare category includes broadband-enabled activities undertaken by participants in CPCWD and SBA programs to improve their own health or that of someone else. This definition includes not only sophisticated tasks, such as viewing one's medical records online, but also more common activities that might not involve a medical provider at all. Healthcare was not a focus of the FAMU project. However, FAMU supported the Bond Community Health Center's Men's Health Program. The program uses the My Fitness Pal website and mobile application to promote healthier, more active lifestyles among uninsured or underinsured men. Participants meet at the CPCWD, where they have access to computers and online resources and receive training to use the technology to track caloric intake and exercise. The men learned healthier eating habits and developed exercise routines. Although the CPCWD did not track individual health outcomes, the program manager reported that some participants lost weight and improved their health during the challenge.

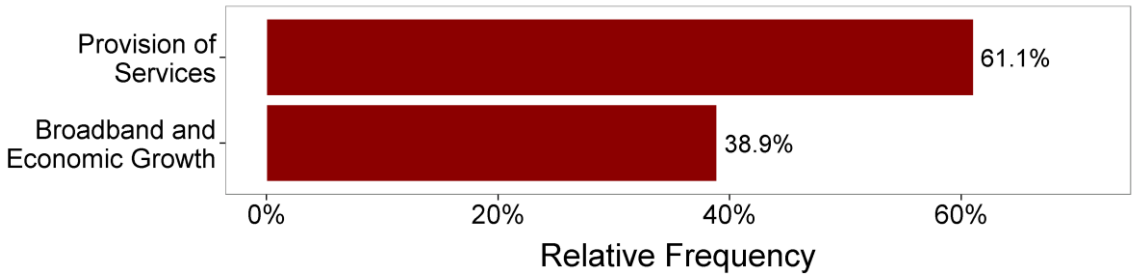
Section 3. Recovery Act Goals

This section describes the activities and outcomes associated with Recovery Act goals. Of the five Recovery Act goals for the BTOP program as a whole, two relate most directly to PCC and SBA programs:

1. Provide broadband education, awareness, training, access, equipment, and support to
   a. schools, libraries, medical and healthcare providers, community colleges and other institutions of higher learning, and other community support organizations
   b. organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband services by vulnerable populations (e.g., low-income, unemployed, seniors)
   c. job-creating strategic facilities located in state- or federally designated economic development zones
2. Stimulate the demand for broadband, economic growth, and job creation

Figure 4 presents the relative frequency of topics related to Recovery Act goals as discussed during interviews and focus groups with FAMU staff, partners, and patrons. These topics were categorized by the two Recovery Act goals discussed above. More than half of the conversations, approximately 61 percent, focused on the provision of services to increase broadband and computer access to target populations in Tallahassee and other areas. Grantee and partner discussions about broadband and economic growth were near 39 percent, specifically pertaining to training, certification, and activities to increase small and disadvantaged businesses, assistance for business entrepreneurs, and individual employment opportunities.

Figure 4. Recovery Act Goals Statements Made by Interviewees



3.1 Provision of Equipment and Services

> *"The BTOP grant offers our center a way to sustain itself and to continue to offer programs that can be accessed here in this community." – CPCWD Lead Trainer*

As a first step toward increased broadband adoption, FAMU and its partners developed a citywide campaign to promote awareness of the CPCWD, the course offerings, and free access to computers, the Internet, and other services. FAMU implemented a multimodal approach for increasing public awareness about broadband that consisted of public service announcements (PSA) through e-mail and social media, and a grassroots approach by distributing flyers and marketing materials through community organizations and local businesses that serve the target population.

3.1.1 Broadband Awareness

- News releases and PSAs were released in coordination with the FAMU Public Relations Office. PSAs aired on two radio stations in Tallahassee. Local TV news stations visited the CPCWD to speak to staff. Advertising spots aired on the campus television station, played both on campus and in the local community.
- CPCWD aired radio advertisements in urban markets in Tallahassee to reach the target population.
- Staff and volunteers distributed flyers and brochures with information about CPCWD offerings, the center hours of operation, and services to organizations frequented by the target population, including libraries, community centers, social service organizations, barber and beauty shops, churches, grocery store bulletin boards, shopping malls, and FAMU dormitories.
- The CPCWD staff sent e-mails about the course offerings and center information to individuals in the community who were identified through e-mail distribution lists.
- CPCWD used social media to target current and new patrons. The center created a Facebook page, a YouTube page, and a Twitter account to follow the activities of the center. The staff posts a schedule of the training courses for the public to view. FAMU also broadcasts services and course offerings on the FAMU University Advancement Facebook page.
- Cisco staff traveled to FAMU in August 2013 to write an article about the Cisco TelePresence solution deployed at the FAMU College of Pharmacy in Crestview, Florida.[31] The CPCWD used the technology to enable pharmacy students at the Crestview campus to participate in course lectures at the Tallahassee campus, and access archived lectures and materials.

3.1.2 Provision of Equipment

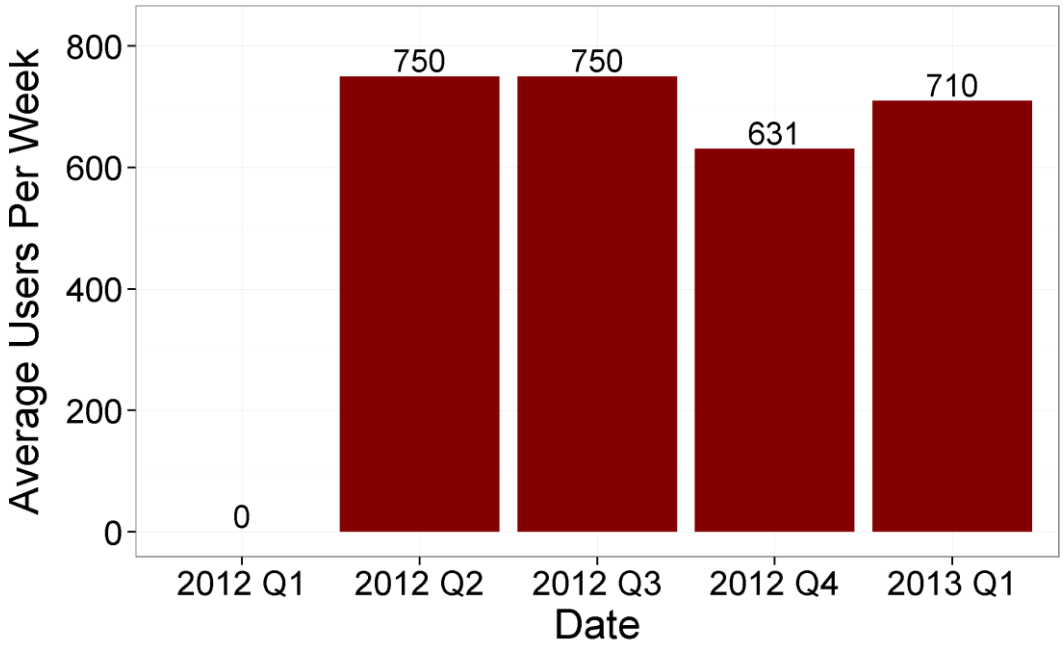
- The CPCWD is a renovation of 2,000 square feet of interior space in the M.S. Thomas Building on the FAMU campus. The CPCWD has eighty new computers available to the public: seventy-seven computer workstations and three laptops. FAMU received resources to acquire twelve additional computers and three laptops, exceeding the proposed goal of sixty-five computers.[32] FAMU installed and networked all computers on a gigabit-switched LAN and established an 802.N wireless environment to serve clients who select to use mobile computing devices.[33] The wireless connection increased broadband usage by allowing the center patrons to access the Internet through their smart phones, iPhone or Android tablets, or personal computers.
- The CPCWD has three activity and training areas. One training room has thirty-five computer workstations with priority assigned to training activities. A second training room has twenty-three computer workstations with first priority assigned to the public for computer access. Both rooms have high definition (HD) video conferencing technology, digital capture for live video streaming of training events, and online video on demand that records trainings that are posted on the CPCWD website. A third training room has seven computer workstations with priority assigned to open access for public users for one-on-one instruction and training for volunteers. A fourth area in the CPCWD atrium not previously identified for computer workstations and public use is dedicated solely to open access to the public. The atrium space also includes public access to a fax, printer, and telephone. The additional workstations enable more patrons to participate in course offerings and online virtual teacher-led training. The computers meet the specifications required for the use of the Cisco Jabber video conferencing client software to access the Cisco TelePresence system. The university is upgrading to a 10 Gbps backbone and will expand its contribution to Internet2, as a charter member of the organization.
- The CPCWD Cisco content server is capable of five simultaneous capture sessions during virtual teleconferencing. The center has access to three bridges on the campus network that enable them to accommodate multiple patrons in a single training session. The FAMU computer networking division plans to improve the infrastructure and capacity to accommodate more participants in the virtual trainings by purchasing and adding a forty-port bridge.

3.1.3 Training Courses and Workshops

The CPCWD serves as a technology resource partner to other community-based computer centers. Its major thrust in its partnerships is toward helping provide access to education and training programs and services to the users of these centers.

Training courses, workshops, and industry certifications increase business opportunities for small and disadvantaged businesses, students who are in high school and college, and individuals who are unemployed or underemployed. Figure 5 presents the average weekly users through the first quarter of 2013. Usage remained constant at 750 between the second and third quarters of 2012.[34] Average weekly users decreased by 119 in the fourth quarter of 2012, which is consistent with the turnover in staff during this timeframe.[35] There were fewer personnel available for marketing in the community and assisting patrons at the CPCWD. The number of weekly users grew the first quarter of 2013, which reflected an increase in marketing by the staff at the beginning of the year to promote the CPCWD. This was a result of implementation of the virtual training with the SBDC for the small and minority business training, the increase in the number of community partnerships to build out the network, and course and certification offerings.

Figure 5. Average Weekly Users by Quarter



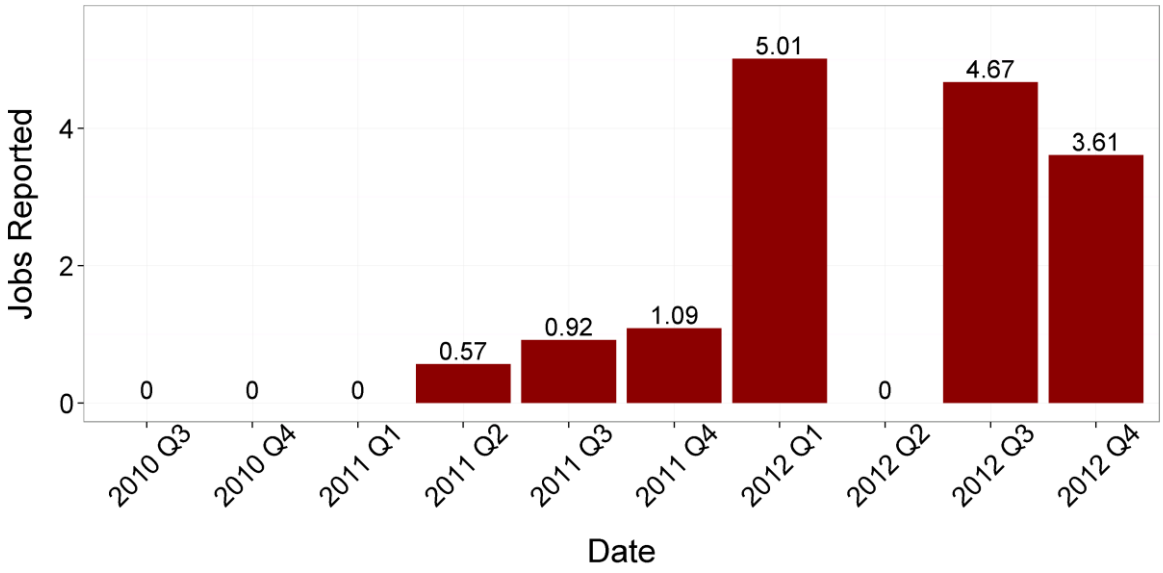
3.2 Broadband and Economic Growth

FAMU activities resulted in impacts in the focus area of Workforce and Economic Development. In addition to facilitating individuals' ability to operate a business, the project helped to spur economic growth by increasing the skills and knowledge of the workforce. The paragraphs below discuss the outcomes and impacts of these activities.

As required by the Recovery Act, FAMU reported quarterly on the number of jobs created as a direct result of the project. Figure 6 shows an average of less than one full-time-equivalent (FTE) employee at the onset of activities conducted by FAMU and 3.61 FTEs by the end of 2012.[36] The period from the third quarter of 2010 to the first quarter of 2011 reflects the delay in the grant because of the clearances that FAMU had to obtain from the American National Historic

Preservation Act before construction could begin. In addition, code requirements concerning the removal of harmful materials in the building caused unexpected delays. This resulted in delays in hiring and program activities. From the middle to the end of 2011, there was a minor increase in staff from one-half FTE to a little over one FTE. This time period represents the time spent on the project by the program director dedicated to planning, hiring of a construction project manager, and the beginning of the construction on the facility. The beginning of 2012 shows an increase in the number of FTEs, which jumped to five. This number represents the staff hired by the project director after the construction was complete before the beginning of program activities, including training and marketing. Over the course of the grant period, the grant funded nine positions directly, including one computer center manager, two consultants/lead trainers, one trainer, two part-time technical support personnel, one digital video director, one computer support specialist, one help desk, and one secretary.

Figure 6. Direct Jobs Created by FAMU



It is important to note that the figure above displays only direct jobs created, and does not include indirect or induced job creation.

Section 4. Grant Implementation

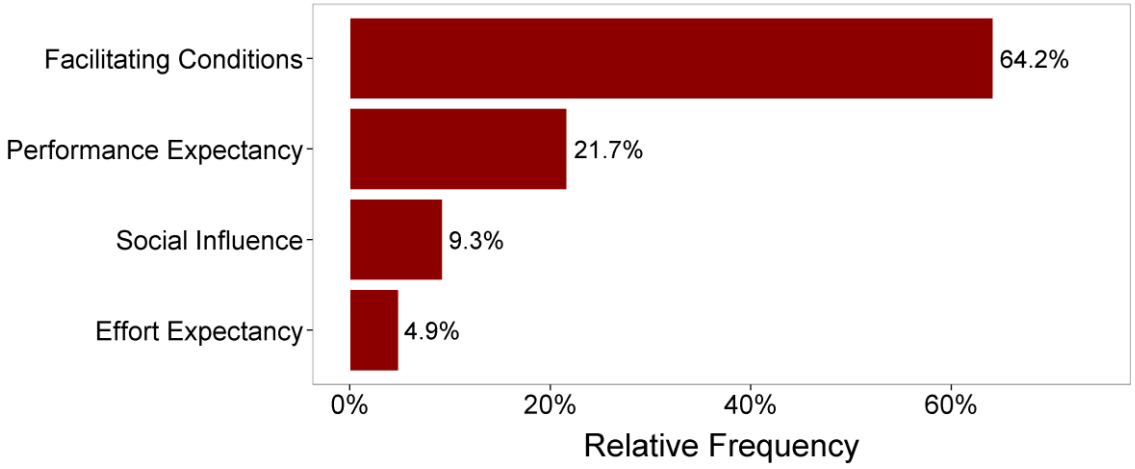
This section describes particular aspects of implementation of the CPCWD project in order to understand the composition of activities and outcomes observed. The purpose of this section is twofold. First, defining a consistent set of categories for each of the grants in the study sample facilitates cross-case comparison and analysis. Second, presentation of the activities and outcomes for this grant by category simplifies understanding of the focus of the grantees' work. This analysis is based on qualitative observations made during the site visit.

ASR is using a theory-based evaluation approach to examine the social and economic impacts of the BTOP program. This permits deeper understanding of grant features in terms of theory, which helps to explain how the grant activities produce impacts. For the PCC and SBA grants, ASR uses theories of technology adoption to examine factors that shape the demand-side of broadband services. The key theory ASR employs is the unified theory of the acceptance and use of technology (UTAUT), a technology adoption model proposed by Venkatesh et al. (2003).[37] The model is among the top three most frequently cited articles published in the information systems field and the preeminent article explaining the adoption of information systems. The UTAUT model traces its history from theoretical constructs found in literature that have a bearing on a user's intention of technology adoption and use. The UTAUT model is derived from the leading theories of technology adoption, including the theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory.

UTAUT explains technology acceptance by looking at a user's intention to use an information system and the user's long-term use of that technology. The UTAUT model combines concepts found in earlier models of technology use to posit a unified theory of information technology adoption and use. UTAUT includes four dimensions determining user intention and technology use: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Each of these dimensions is further classified into constructs constituting the dimension. The subsections below define and discuss each of these dimensions. Venkatesh empirically tested the model and reported that it was successful in explaining more variation in user adoption of technology than other adoption models tested.

Figure 7 presents the relative frequency of topics related to grant implementation as discussed during interviews and focus groups. These topics were placed in four categories, corresponding to the four UTAUT categories listed above. At 64 percent, interviewees discussed Facilitating Conditions most frequently.

Figure 7. Distribution of Grant Implementation Topics by UTAUT Dimension



4.1 Facilitating Conditions

> *"I think people are more comfortable coming here than they would ever be at the library. That was part of our whole goal. One of our major goals is access. I think we've hit that out of the park." – CPCWD Trainer*

This category captures the degree to which the technical infrastructure available to the user supports potential broadband adoption, and the degree to which there are organizational supports to adoption. This includes access to broadband technology, the extent to which users can choose to use broadband, the compatibility of broadband with their lifestyle and activities, and the cost of using broadband. This also includes the resources needed to support the CPCWD's services to provide access to the Internet and computers. It includes such things as the broadband connection, computers, workspaces, and clean and safe computer labs.

4.1.1 Access

- The CPCWD is located on the FAMU campus, making it easily accessible for student use. It is also located on a bus route and within walking distance to nearby communities, allowing access for the public. The CPCWD is open seven days per week from 8 AM to 10 PM, allowing flexibility in access and training schedules.
- Computer hardware and Internet access were the focus of the participants in the interviews. FAMU established access by upgrading a facility to create the CPCWD for students and the public in order to facilitate broadband use.
- The CPCWD provides free phone and fax access, which the staff observed has been beneficial to business owners in submitting and following up on business proposals.
- The project provided access to seventy-seven workstations, three laptops, Internet connectivity with speeds up to 1 Gbps, and an instructor at no cost.
- The grantee allowed patrons to print up to fifteen pages at no cost. Users may donate a ream of paper to increase their printing limits.
- FAMU provided access to Cisco Jabber Video software that allows users to access trainings held in the CPCWD virtually. At the time of the site visit, the grantee had initiated installation of hardware and software in the FAMU campus library, community housing authority sites, a neighborhood development center, and a local church to expand virtual access for the public.

- FAMU provides a secure workspace and network infrastructure. The local police department monitors the CPCWD by a security camera twenty-four hours a day, communication closets are secure, and there are five firewalls for data security with checkpoints. At the time of the site visit, there had been no security breaches.

4.1.2 Support for Education and Training Activities

- The smart classroom uses a Crestron Digital Media infrastructure so teachers with larger classes can use the CPCWD just as if they were in class. The infrastructure includes a digital audiovisual (AV) network with HD digital content that enables professors to teach over long distances using the video conferencing capabilities.
- The CPCWD provides access to Internet 2, which allows users to access information that may not be available or easy to find, particularly a greater variety of and improved access to educational resources.
- Virtual trainings are archived to allow those who cannot attend to access them on demand through the Internet.
- There is no time limit on computer usage, allowing ample time to access resources to operate their businesses and complete coursework.
- The CPCWD serves as a training and recruitment hub for organizations like the USDA and the THA. CPCWD staff reported that more than twenty organizations conduct trainings for their employees at the CPCWD.

4.2 Performance Expectancy

Performance Expectancy measures the degree to which a potential adopter believes that using the public computing center to gain access to broadband is beneficial for job searching or for an activity in another focus area. Aspects of performance expectancy include the perceived usefulness of the new technology, outcomes expectations, and the perceived relative advantage of the technology versus previously used technologies.

FAMU addressed performance expectations by bringing awareness to the usefulness and benefits of Internet access. One business owner stated that the staff taught her to use her laptop and tablet for her business, and how to use the technology to develop a radio show to promote her business and network with other businesses.

Users' performance expectations appear to have evolved as their digital literacy skills improved. The staff noticed that patrons were primarily visiting five websites, mainly for entertainment and social networking. Staff encouraged broader use of the Internet by suggesting training classes and certifications, in ways that emphasized broadband use to improve users' lives.

4.3 Social Influence

This category measures the degree to which potential adopters perceive that others will view them favorably or interact with them in a positive way if they adopt broadband technology. This includes friends and family members who might already be using broadband technology. It also includes measures of whether the use of broadband is considered to be a social norm for the social group to which the potential adopter belongs. Components of social influence include subjective norms, social factors, and the image associated with broadband use. Examples include the following:

- Patrons network with and mentor one another at the CPCWD. People learn from each other as users share their abilities, resources, and experiences in career development. By networking with another user in the CPCWD, an event planner provided free advertisement to a business

owner during an event. Users state that they enjoy building relationships with each other to promote their businesses and benefit their community.

- According to the CPCWD staff, word of mouth is an important tool for outreach. Users consistently share their experiences with others, thereby drawing more users to the CPCWD. The grantee also used traditional outreach mechanisms such as radio and television advertisements, flyers, texts, and e-mail blasts to promote the benefits of broadband and the services the CPCWD provides.
- The grantee states that the public library referred a large number of users to the CPCWD by the public library. CPCWD staff and users state that the public library is the only known place that allows public use of computers and the Internet at no cost. Users appear to be aware of and comfortable with using their local public libraries. However, the library does not offer services comparable to those of the CPCWD, including access to training, certification, and staff. The library refers users to the CPCWD when it does not have adequate services to assist patrons. The library also distributes printed materials to promote the CPCWD services.

Section 5. Techniques, Tools, and Strategies

This section describes successful techniques, tools, and strategies identified by the grantee. FAMU noted many successful techniques, tools, and strategies that it developed over the course of the grant.

5.1 Techniques, Tools, and Strategies

- Establishing relationships with organizations such as FDOT, USDA, and NASA elevated the awareness of the CPCWD and its offerings. These relationships provided additional workforce development related training opportunities for users.
- The relationships staff established with the public library system resulted in referrals to the CPCWD. Individuals had access to additional resources such as trainings and one-on-one assistance not offered at public libraries.
- The CPCWD served as a demonstration site for Cisco TelePresence system for virtual teleconferencing. Other FAMU departments now plan to adopt the technology to supplement classroom curriculum and Blackboard. Blackboard is a learning management system used to provide course delivery, management, communication, content management, and student assessment, for institutions.[38]
- The CPCWD is an instructor-led lab that provides support to users at any level of digital literacy. CPCWD staff members possess significant experience and training in computers and technology. Staff members used their expertise to assist users in a variety of computer-based activities from creating Microsoft Word documents to websites.
- The CPCWD launched its first phase of staff development by implementing a staff training and certification program with the goal of reducing costs for maintenance and support of the computers, teleconferencing system, and other technology in the center. The digital video director received certification in digital media in three areas: Designer, Technician, and Engineer. All technical CPCWD staff members and the director possess Crestron certification. Although there was an initial cost, there is substantial long-term savings, as the staff can now set up equipment across the university and in the future establish virtual community labs rather than hiring outside technicians.
- The CPCWD staff recognized the Cisco Jabber Application on remote personal computers as a reliable and cost-effective approach to providing virtual training. The application allows individuals to access the teleconferencing system from a remote location anywhere and interact virtually with instructors and other training participants in the same manner as it does for those in the live classroom environment. There is no cost to participants.
- Using new and advanced technologies, such as the virtual infrastructure, presents uncertainties and risks. FAMU overcame these challenges through proper planning and research. The grantee contacted other universities and companies that use the technology to ensure that it would be a good fit for the FAMU project.
- Having a rigid operating schedule of fifteen hours per day, seven days per week, required a substantial investment in personnel. FAMU overcame this challenge by using student volunteers and interns to serve as lab monitors and assist in facilitating training classes.

5.2 Challenges

FAMU encountered numerous challenges during the grant implementation that resulted in project delays. These challenges include the following:

- The project experienced a fifteen-month delay because of unanticipated problems with construction. FAMU was required to gain clearances to fulfill the requirements of the American National Historic Preservation Act Special Award Condition (SAC) that imposed a restriction on the expenditure of the grant funds necessary to begin construction. FAMU received approval to proceed with the use of federal funds to construct the PCC at the M.S. Thomas Building on the FAMU campus on February 14, 2011. The project also experienced delays because of unanticipated problems with construction, including addressing code requirements concerning the removal of flooring and potentially hazardous materials in the building.
- Obtaining a right-of-way construction permit from the city to lay fiber to establish Internet connectivity to the building was a challenge.
- Constructing the CPCWD according to building code requirements required additional finances and resources for equipment and services.
- Partner involvement requires a Memorandum of Understanding (MOU) that must undergo each organization's legal review and approval.

Other challenges included the following:

- The FAMU Academic Department of Workforce Education, which was going to provide a significant part of the workforce and development training for the CPCWD, could not participate as a grant collaborator because of budget reductions imposed by the university that decreased personnel for training.
- Test speeds at potential virtual labs in community organizations were too slow to operate the technology effectively. Network speeds were sufficient to complete tasks such as downloads, but were inadequate for two-way communications and would not support video conferencing and virtual trainings. Some organization leaders had changed providers to upgrade network speeds and improve capacity, while others reconfigured network equipment to accommodate the new technology.
- Apathy is a significant challenge in some communities. CPCWD staff observed that some patrons possess the ability to use computers and access the Internet, but lack the skills to use it to enhance their lives. FAMU conducted outreach and encouraged individual users to broaden their computer skills through training and certification to overcome this challenge. The grantee also offered a variety of classes at multiple times to encourage attendance.

Section 6. Conclusions

The CPCWD project approached issues of broadband awareness, access, and adoption by focusing on workforce development-related activities. FAMU used grant funds to remodel the M.S. Thomas Building on the FAMU campus to house a new computer center with eighty computers available to students and the public. FAMU focused on the most economically and socially vulnerable populations in Tallahassee: the unemployed, underemployed, students, youth, veterans, and seniors. Although the project was delayed by fifteen months and grant activities did not begin until the middle of 2012, FAMU has begun to document impacts in the focus areas of Workforce and Economic Development, Education and Training, and Digital Literacy.

The CPCWD provided a supportive environment for small and disadvantaged businesses and entrepreneurs to participate in trainings and certification programs for the growth of their businesses. The CPCWD staff also assisted individuals who were searching for jobs in creating e-mail accounts, developing résumés, and job search support. In addition, the CPCWD offered courses and one-on-one training for high school and college students. Students completed coursework and completed degree programs. Several students completed an internship program and gained critical technology skills that helped them get accepted to college with a major in audio and video engineering. A majority of the assistance provided at the CPCWD was in the focus area of Digital Literacy, where staff provided more than twenty different courses for patrons to increase computer skills in the Microsoft Office Suite, Photoshop, web design, mobile applications, and social media.

Five components of the project provided the most significant benefits to users: workforce development and training; access to new computer workstations; interactive video teleconference technology using a Cisco TelePresence infrastructure and AV equipment; digital literacy training; and access to FAMU staff and resources. According to FAMU, broadband access, workforce development skills, and digital literacy skills are important for meeting its goals of increasing the workforce and strengthening the employability and competitiveness of the target population.

Two unexpected benefits resulted from the BTOP grant. First, the CPCWD was used as a venue for training the staff of federal, state, and community agencies because of its state-of-the art equipment, technological capabilities for virtual training, and resources. This initiative has presented an opportunity in which the CPCWD now offers the center as a training space for businesses and agencies. Organizations can access interactive video teleconference technology, computers, and AV presentation equipment. Second, entrepreneurs with small, budding businesses often do not have office space and use the CPCWD as a workspace from which to operate their businesses and to carry out business-related tasks. This includes the development of materials such as flyers, business cards, and websites, often with assistance from CPCWD staff.

Section 7. Next Steps for the BTOP Evaluation Study

In early 2014, ASR will deliver *Interim Report 2* to NTIA. This report will include a summary of the second round of case study visits to the fifteen PCC and SBA grants, allowing for an analysis of the impacts of the grants over time. *Interim Report 2* will also summarize the findings from case study visits to twelve Comprehensive Community Infrastructure (CCI) grants. These visits will take place in the fall of 2013 and result in a set of twelve case study reports delivered to NTIA over several months.

For the PCC and SBA projects, *Interim Report 2* will provide an update to and refinement of the analysis presented in *Interim Report 1*. For the CCI projects, *Interim Report 2* will summarize the activities underway by twelve CCI grantees and the impacts these projects intend to have on broadband availability and adoption for community anchor institutions, communities, and individuals.

Compliance with the American National Historic Preservation Act Special Award Condition (SAC) and unanticipated construction problems delayed the implementation of the FAMU BTOP project by fifteen months. The project director informed ASR staff that FAMU would apply for a grant extension to extend the program for an additional year to meet the goals of the grant. FAMU plans to carry out the following activities:

- The CPCWD plans to implement the Virtual Study Hall (VSH) program to provide tutoring to students who live in the Tallahassee Housing Authority, attend the Love and Faith Community Church, or use the Apalachee Ridge Technology Learning Center using the state-of-the-art teleconferencing equipment. The VSH is an Internet-accessible program for pupils in grade school programs seeking assistance with homework and coursework. The VSH offers students virtual face-to-face access to an individual tutor for assistance with material and concepts they seek to learn. FAMU has not determined the launch date of the program.
- Initial installation of equipment and software by the certified trainers in computer centers of community agencies designated as CPCWD virtual training and technology access centers has begun. Remote teleconferencing capabilities were completed at the Apalachee Ridge Technology Learning Center.
- The CPCWD contracted with an evaluator to develop and help implement a user survey for the project. The evaluator had established data elements for assessment of the quality and effectiveness of services.
- FAMU will improve infrastructure and capacity to accommodate more participants in the virtual trainings by the purchase and addition of a forty-port bridge.
- The CPCWD and the SBDC are planning to make the recorded video trainings from the FDOT Construction Management Development Program training program for small and disadvantaged businesses available online, which will give business owners access to the trainings from home.

FAMU plans to implement the following initiatives to sustain the project when the grant period ends:

- Establish the CPCWD as an auxiliary enterprise unit of FAMU and a partner in developing technologically smart classrooms on the campus. The CPCWD would be the source of best practices for implementation of existing classroom training and new classroom development by performing all design, engineering/integration, technical installation, and programming of classrooms with the new classroom instruction and learning environment. The CPCWD would also be the source for maintenance and support of the large number of systems in operation on

the campus. Based on estimates of current costs, the university would incur savings and the CPCWD would have an income stream adequate to fund its operations.

- Reduce the costs of paid instructors by training FAMU personnel in other departments to use the Cisco TelePresence infrastructure system. The training would include staff of FAMU departments and programs that have training and workforce development as their mission with a need to conduct ongoing programs.
- Reduce training costs by collaborating with other departments and programs on the FAMU campus to facilitate implementation of instructor-led virtual training through the video teleconferences.
- Generate income from proctoring online tests for certifications through the Certiport industry certification program.
- Reduce staffing costs by using student interns in the SVIP program to assist in the CPCWD if there is staff turnover. The interns are skilled in technology and equipment maintenance in the facility and serve as trainers in the center.

In September 2014, ASR will deliver a *Final Report* that quantitatively and qualitatively measures the economic and social impact of BTOP grants (including CCI, PCC, and SBA). The centerpiece of the *Final Report* will be an assessment of how and to what extent BTOP grant awards have achieved economic and social benefits in areas served by the grantees. To the extent that such information is available, results from studies performed by the grantees will round out the conclusions presented.

Notes

[1] Florida Agricultural and Mechanical University Office of Instructional Technology, "About Florida Agriculture and Mechanical University", 2013, http://www.famu.edu/index.cfm?AboutFAMU.

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Glossary

Acronym	Definition
APR	Annual Performance Progress Report
AV	Audiovisual
BTOP	Broadband Technology Opportunities Program
CESTA	College of Engineering, Sciences, Technology, and Agriculture
CCI	Comprehensive Community Infrastructure
CPCWD	Center for Public Computing and Workforce Development, the branded acronym for the FAMU computer center, and the name of the project
DRS	Developmental Research School
FAMU	Florida Agricultural and Mechanical University
FCC	Federal Communications Commission
FDOT	Florida Department of Transportation
FTE	Full-time-equivalent
GED	General Equivalency Degree
HD	High Definition
HVAC	Heating, ventilation, and air conditioning
MCSE	Microsoft Certified Solutions Expert
MOU	Memorandum of Understanding
NASA	National Aeronautics and Space Administration
NTIA	National Telecommunications and Information Administration
PCC	Public Computer Center
POPS	Professional Opportunities Program for Students, Inc.
PPR	Quarterly Performance Progress Report
PSA	Public Service Announcements
SAC	Special Award Condition
SBA	Sustainable Broadband Adoption
SBDC	Small Business Development Center
SVIP	Student Volunteer and Internship Program
THA	Tallahassee Housing Authority
USDA	United States Department of Agriculture
UTAUT	The Universal Theory of Acceptance and Use of Technology
VSH	Virtual Study Hall

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