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FINAL EVALUATION REPORT

Summative Evaluation

TAACCCT Round 2
Accelerated, Blended – Online, 2 + 2 TAACCCT Training Project

October 2012 – September 2016

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Executive Summary

The CUSJ proposed its Accelerated, blended – Online, 2 + 2 TAACCCT Training Project to: (a) improve its technological infrastructure, (b) create online and blended courses, (c) provide faculty development workshops to better integrate technology in the classroom, (d) enhance student services, (e) incorporate counseling and (f) provide online tutoring, among other activities. These improvements and changes would facilitate the inclusion of laid-off workers from eligible companies from around the island to achieve an Associate Degree in Electronics Engineering Technology, and easily transfer to a four-year institution (Polytechnic University of Puerto Rico – PUPR) to complete a Bachelor's Degree in Electronics Engineering. Furthermore, the project expected to place these workers on related jobs after the completion of the corresponding degree and determine if the new degree allows these participants to achieve better paying jobs. It targeted displaced workers and other adults.

In order to achieve its goals, the CUSJ succeeded in creating a collaborative agreement with the PUPR that facilitates courses transferability between the two institutions which allows students to purse a bachelor's degree. In addition, the CUSJ contacted potential employers to discuss the manufacturing industries' current and future skills needs. This allowed the institution to create a curriculum that aligns to the current job market to better prepare its students. Also, agreements for job allocation once students complete their degrees were also achieved.

To evaluate project activities, outcomes and impact, a mixed methods approach was used (qualitative and quantitative analyses). The evaluation adopted the CIPP evaluation model developed by Dr. Daniel L Stufflebeam. A logic model was developed to show project inputs, activities, resources, and short, mid and long term outcomes. Each evaluation question was placed within its corresponding evaluation part of the model.

Enrollment, program retention, and graduation rates were analyzed and compared to the expected outcomes establish in the Project's statement of work. Additionally, an impact analysis on academic achievement was performed, by comparing participants (students enrolled in eligible academic programs on August 2013 and forward) and non-participants (the rest of the population who took the modified courses). This analysis allowed to evaluate modified courses effectiveness in improving passing rates in those courses. Due to project particularities (small population, no control group, inability to perform a randomized controlled trial due to enrollment processes) a non-experimental design was adopted.

The Project's first priority was to improve the CUSJ infrastructure, be creating an Educational Opportunities Center, and equipping classrooms with technology such as *Smartboard*, and computers to enrich the educational experiences of students. Even though Project implementation was delayed, classroom equipment, educational materials and computers were installed by the expected date.

As for its second priority, not only did the CUSJ completed the seven accelerated courses, but increased the amount of courses modified to include online educational components. By the end of the Project, a total of 28 courses were impacted. Other efforts included within this priority addressed the need to modify the curricula of eligible academic programs to increase the amount of credits that could be transfer from the associate degree at CUSJ to bachelor's degrees at the Polytechnic University of Puerto Rico (PUPR). Even so, a proper "2 + 2" articulation agreement could not be fulfilled because academic offerings were not completely compatible (one was in Engineering Technology, while the other were in Engineering), nor the PUPR created the expected bachelor's degree in Electronics Engineering.

Another component of the second priority was the development of collaboration agreements between the CUSJ and TAA Industries to ensure employment for the TAA graduates. The lack of employment opportunities in different industries was affected many companies' willingness to assume a commitment to employ TAA participants.

Employment of TAA participants could not be ensured by companies in which student completed their practice hours, due to lack of available job positions.

The third and last priority address by the Project was to provide academic services, such as tutoring in Math, Sciences and Technology related courses, which proved to be extremely effective, since most students who received the services approved the courses related to the tutoring.

Relating to outcomes and impact analysis, the results can be summarized as follow:

Outcomes	Expected	Achieved	Achievement rate
1. Total Unique Participants Served	110	192	174.55%
2. Total Number of Participants Completing a TAACCCT-Funded Program of Study	85	15	17.65%
3. Total Number of Participants Still Retained in Their Program of Study or Other TAACCCT-Funded Program	19	54	284.21%
4. Total Number of Participants Completing Credit Hours	104	156	150.00%
5. Total Number of Participants Earning Credentials	85	15	17.65%
6. Total Number of Participants Enrolled in Further Education After TAACCCT-funded Program of Study Completion	31	4	12.90%
7. Total Number of Participants Employed After TAACCCT-funded Program of Study Completion	45	1*	2.22%*
8. Total Number of Participants Retained in Employment After Program of Study Completion	40	*	*
9. Total Number of Those Participants Employed at Enrollment Who Received a Wage Increase Post-Enrollment	12	1*	8.33%*

Three out of the nine outcome performance indicators were achieve or excelled (Outcomes 1, 3 and 4). A 192 students enrolled in eligible academic programs, from August 2013 till May 2016, most of the male (94.79%). Only three TAA eligible participants enrolled at the CUSJ during project implementation.

Graduation rate, employment and enrollment in a higher level degree could not be achieved because of the time it takes students to complete the eligible programs

(two years and a summer). There was not enough time to properly achieved the expected outcomes, and to perform participants' follow-up.

The impact analysis on courses approval rate, related to population (participants vs. non-participants showed that the modified coursed tended to show higher approval rates that traditional courses when it came to Math and some Engineering Technology Courses (five out of 28 courses). However, the general approval rate for both populations was 68%, suggesting that there are no statistically significant differences among participating and non-participating students' approval rates.

The CUSJ TAACCCT Round 2 Project was successful in implementing most of its proposed activities. It even exceeded many of its intended activities (amount of students served, amount of courses modified, classrooms equipped). Still, time constrains limited Project outcomes and follow-up activities.

Projects achievement as well as challenges provides an opportunity to consider some implications for future programs, as well as recommendations for program improvement:

- Within the Higher Education setting, many educational programs take two or more years to complete. This situation affects proper outcome analysis, since project timeframe may not be enough to properly study program's impacts on participants lives.
- The diversity of the served population represents a challenge. TAA eligible prospectus have different needs and priorities than traditional students (recently graduated from high school). Providing more information and additional incentives may motivate more eligible adults to complete academic programs.
- Women participation in STEM related programs should be encourage. There is still a gap between men and women in those fields.
- Projects that aim to achieve long term impact should consider awarding grants for more years (at least, for follow-up activities and evaluation).

Introduction

As some manufacturing companies in Puerto Rico have seized operations in the island, many workers have lost their jobs. As a way to improve their opportunities and possibilities for better job placement, the US Department of Labor (US DOL) announced funds under the Trade Adjustment Assistance Community College Career Training (TAACCCT) grant. TAACCCT grants were available to community colleges and consortiums willing to create or adapt their academic offer to provide formal education formation to laid-off employees and those at risk of losing their jobs as a result of their companies leaving U.S. Territory to relocate in other countries.

The Colegio Universitario de San Juan (CUSJ), as the only public, mostly associate degree granting institution of higher education in Puerto Rico, took on the task of developing and adapting its academic offering to better assist the TAA eligible population in Puerto Rico.

In 2012, the CUSJ submitted its *Blended – Online 2 + 2 TAACCCT Training Project* (TAACCCT Round 2). The Project's objectives were to: (a) improve its technological infrastructure, (b) create online and blended courses to accelerated program completion, (c) provide faculty development workshops to better integrate technology in the classroom, (d) enhance student services and (e) provide online tutoring, among other activities. These improvements and changes would facilitate the inclusion of laid-off workers from eligible companies from around the island to achieve an Associate Degree in Electronics Engineering Technology, and easily transfer to a four-year institution (Polytechnic University of Puerto Rico – PUPR) to complete a Bachelor's Degree in Electronics Engineering. Furthermore, the project expected to

place these workers on related jobs after the completion of the corresponding degree and to determine if the new degree allows these participants to achieve better paying jobs.

The Project would enhance and improve CUSJ's capability to, not only increase its retention and graduation rates in its science and technology academic programs but, paired with the 2+2 career pathway, facilitate student transfer to the bachelor level and to track post-graduation employment at the associate and bachelor levels. Given that CUSJ has a 40-year trajectory of preparing students for industry and technology fields, this project would add a new accelerated, blended and online dimension to already affordable, existing academic programs.

In order to achieve its goals, the CUSJ succeeded in creating a collaborative agreement with the PUPR that facilitates courses transferability between the two institutions which will allow students to purse a bachelor's degree. In addition, the CUSJ contacted potential employers to discuss the manufacturing industries' current and future skills needs. This allowed the institution to create a curriculum that aligns to the current job market to better prepare its students. On the other hand, the Project would aggressively develop collaboration agreements with TAACCCT Industries to ensure employment for its graduates.

Nonetheless, transitioning workers to the college environment provides challenges, like adjusting to the institution, the distance they may have to travel to get to classes, their personal responsibilities, academic achievement gaps, etc, so the institution has to provide support services to this population in order to maintain an adequate retention and completion rate, and promote the pursuit of higher degrees. Outreach efforts to attract participants encompassed all the geographical area of the

archipelago of Puerto Rico. The program worked towards high retention and graduation rates among participants and high employment rates after program completion.

All the aforementioned circumstances required the project to include a comprehensive and rigorous evaluation approach that would evaluate:

(a) The implementation of the project (What actions and activities were proposed? Which were performed? Which not, and why?)

(b) The proper use of project resources;

(c) The achievement of the project goals on retention and completion rates, and employment and wages increases.

(d) The project's impact on the CUSJ capacity building.

This Evaluation focused on providing evidence of change and impact of the project (summative evaluation). The summative evaluation provides proof of the extent to which mid and long-term outcomes have been obtained, including lasting impact on participants and the institution's capacity to continue providing access, retention and graduation to displaced workers and other adults to accelerated, blended, quality education that results in stackable and latticed credentials in the students' chosen career paths.

Evaluation questions

The formative evaluations conducted addressed the following research questions:

F1. How was the particular curriculum selected, used, and / or created?

F2. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program?

(a) What assessment tools and processes were used?

(b) Who conducted the assessment?

(c) How were the assessment results used?

(d) Were the assessment results useful in determining the appropriate program and course sequence for participants?

(e) Was career guidance provided, and if so, through what methods?

F3. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of:

- Program design
- Curriculum development
- Recruitment
- Training
- Placement
- Program management
- Leveraging resources
- Commitment to program sustainability

(a) What factors contributed to partners' involvement or lack of involvement in the program?

(b) Which contributions from partners were most critical to the success of the grant program?

(c) Which contributions from partners had less of an impact?

F4. How the program was designed, improved or expanded using grant funds?

(b) What delivery methods were offered?

(c) What was the program administrative structure?

(d) What support services and other services were offered?

Research questions for the summative evaluation aimed to provide supporting evidence of change in participants and also impact both on participants after graduation and in the institution's capacity building that enables the CUSJ to continue, beyond project completion, increasing the number of displaced workers and other adults whose lives are transformed through education and credential attainment in career paths that are stackable and latticed. These questions are:

S1. Were the seven blended and online accelerated courses of the Associate Degree in Electronics Engineering Technology ready by the expected date?

S2. Was the intended audience served?

(a) How many participants were TAA eligible?

(b) How many were displaced workers?

S3. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who…?

- …were served?
- …completed any number of credit hours?
- …graduated / obtained at least one credential?
- …continued their education to a higher or complimentary level?
- …obtained additional credentials after graduation?
- …were employed within three months after graduation?
- …retained their employment four to nine months after graduation?
- …were promoted or received a wage increase?

S4. What partnerships were created that will benefit future participants?

a. What did partners considered to be their contributions to project success?

S5. What is the impact of the project in the institution's capacity to improve and expand its academic offering through continued partnerships with businesses and industries beyond project completion?

S6. What is the impact of the project in the institution's capacity beyond project completion to increase the number of Hispanic displaced workers, underemployed workers or other adults and young adults in obtaining stackable and latticed credentials in areas of high demand in the world of employment?

Evaluation Methods

A mixed-methods approach was used to assess the project's implementation and outcomes. With mixed-methods, qualitative and quantitative data are blended to analyze both outcomes and process. According to Stufflebeam (2001), mixed-methods studies result in greater validity, generalizability, and usefulness than qualitative or quantitative methods alone (in Ruhe and Zumbo, 2009, p. 30).

For the implementation analysis (formative evaluation), document and educational materials reviews, interviews with project's staff, and focus groups with participants was performed. This allowed assessing what was accomplished, when it was accomplished, what needed to be done or improved, and how those activities or process would contribute to achieve the Project's goals. For example, results of staff's monitoring of student involvement to quickly identify potential at risk students (retention) was compared with actual course withdrawal or failure as part of the evaluation process to ascertain if changes needed to be made to courses design or project's processes.

The summative evaluation (outcomes and impact) methodology concentrates on the comparison between the expected and the actual projects results of the outcomes

variables established by TAACCCT for the project. Also, it focuses on providing evidence of the causal relationship between project's activities and goal's attainment. Further details will be addressed in the respective implementation and outcomes sections of this document.

Evaluation Model

The third-party evaluator used a Management-oriented (decision-oriented) Evaluation approach. It provides project managers and stakeholders with the information needed for good decision making, and focuses on diverse aspects for a program, such as inputs, processes, and outputs (Fitzpatrick, Sanders and Worthen, 2004). The evaluation model used was the *Context – Input – Process – Product* (CIPP) developed by Dr. Daniel Stufflebeam. This model provides a framework to serve managers and administrators in four aspects for a project's decision-making. It is consistent with a wide range of program evaluations, including educational settings, such as school improvement, professional development schools, and transition to work, training and personnel development) and technology (Stufflebeam, 2007).

Each letter of the acronym represents an evaluation type, as follow:

1. *Context Evaluation* assesses needs, assets, and problems within a defined environment.
2. *Input Evaluation* assesses competing strategies and the work plans and budgets of the selected approach.
3. *Process Evaluation* monitor, document, and assess program activities.
4. *Product Evaluation* determines whether the goals were met, and to what degree. It is sub-divided into:

- *Impact Evaluation* assesses a program's reach to the target audience.
- *Effectiveness Evaluation,* which documents and assesses the quality and significance of outcomes.
- *Sustainability Evaluation*, which assesses the extent to which a program's contributions are institutionalized successfully and continued over time.
- *Transportability Evaluation*, which assesses the extent to which a program has (or could be) successfully adapted and applied elsewhere. (This component was not used, as it is optional and dependent to program's objectives and goals).

Intervention

The *Accelerated, Blended – Online, 2 + 2 TAACCCT Training Project's* objective is to serve the educational and training needs of TAA-eligible workers in Puerto Rico. In order to achieve it, the CUSJ's Project stated that it would address three priorities:

Priority 1	Improve physical infrastructure for Blended and Online Delivery Learning Technology by developing an Educational Opportunities Center (EOC) for the use of technology and interactive tools.
Priority 2	Modify an associate degree program for online accelerated delivery to meet the Needs of TAACCCT with Career Pathways by developing blended and online delivery learning courses in the Educational Opportunities Center (EOC). • This priority included joining forces with a 4 years institution that will design years 3 and 4 of an accelerated online bachelor degree program and ease transfer to the proposed online bachelor program through an articulation agreement. • The project will aggressively develop collaboration agreements with TAACCCT Industries to ensure employment for its graduates.
Priority 3	Provide online tutoring and academic services for project participants to improve retention and graduation rates progress and if any student outcomes to date have been achieved.

The activities related to each priority are shown below:

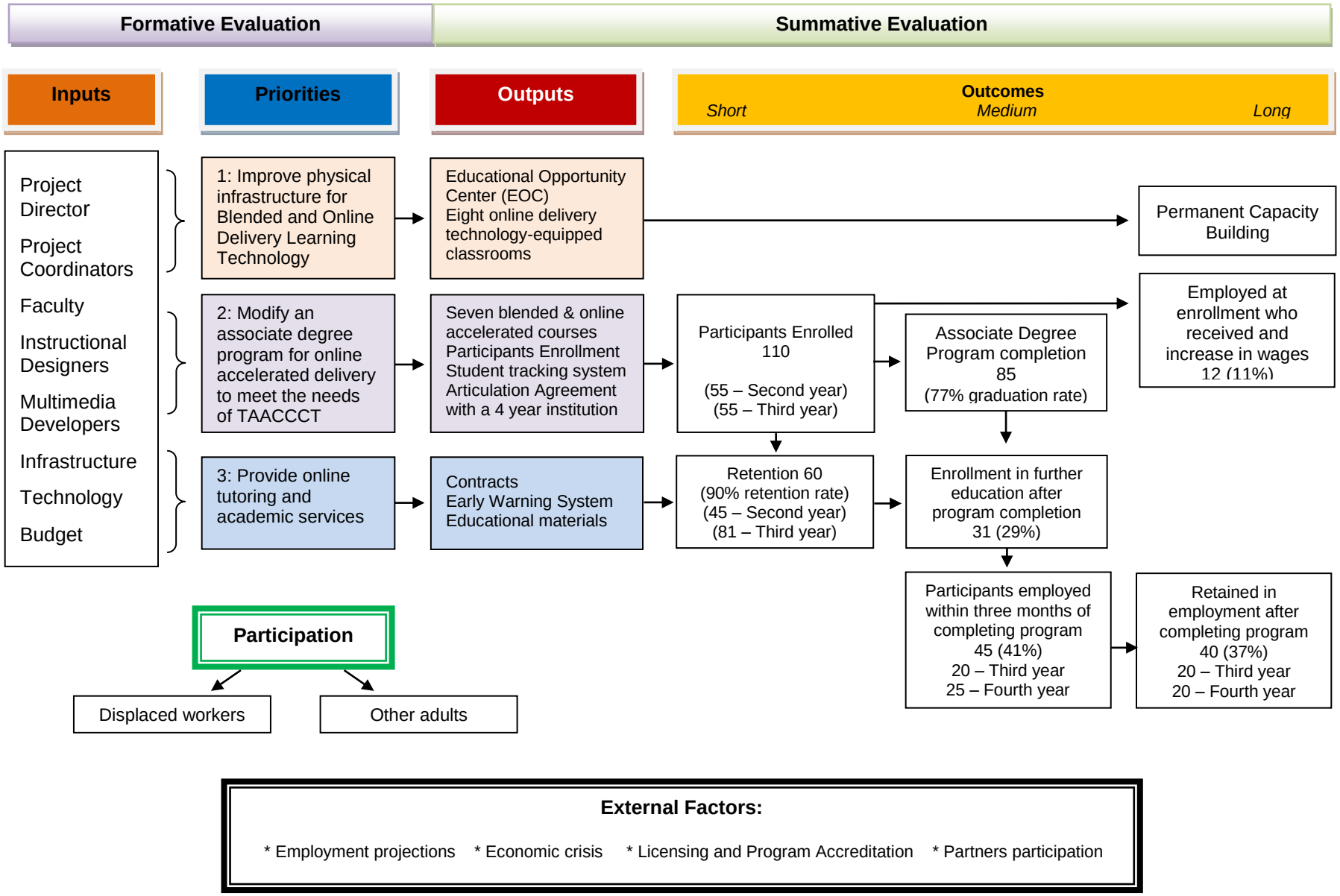
Priority	**Activities**	
1	1.1	Renovate the Educational Opportunities Center (EOC) in Annex of previous Administrative Affairs Office.
	1.2	Equip and install eight (8) blended and online, delivery learning technology classrooms with Smart classroom packages for the implementation of the newly designed and revised courses.
2	2.1	Design and implement seven (7) blended and online, accelerated delivery learning third and fourth level courses of the Associate Degree in Electronic Engineering Technology in the EOC.
	2.2	Enroll TAACCCT participants in the existing Associate Degree in Electronic Engineering Technology Program.
	2.3	Tracking participating students enrolled in seven (7) blended and online, accelerated learning delivery courses of the Associate Degree in Electronic Engineering Technology Program.
	2.4	Assist with articulation agreements to ease transfer planning to other degree-level engineering programs at the Polytechnic University of PR.
	2.5	Maintain articulation agreements with TAACCCT Industries to ensure employment for our graduates.
3	3.1	Strengthen the existing Institutional Student Complementary Services at the Students' Affairs Office by hiring and training three part-time tutors and one full-time (1) online mentor in blended and online technology and early warning system.
	3.2	Assess online tutoring and complementary services for project participants.

The CUSJ stated the following strategies in its Proposed TAACCCT Project:

1. Identify, assess and refer appropriate candidates for education and training.
2. Assess continuously the educational and training needs of TAA unemployed / displaced workers.
3. Propose new ways to extend, improve and enhance the wide range of academic and educational support services for eligible workers.
4. Establish and maintain commitment of TAA participating industries.
5. Maintain tracking mechanisms of TAACCCT Project participants for completion of the blended and online, accelerated delivery associate degree program at the CUSJ.
6. Establish partnerships with organizations and higher education institutions to:
    (a) Help define program strategies and goals.
    (b) Identify the necessary skills and competencies for the proposed program.
    (c) Hire and retain qualified program participants with received wage increase post-enrollment from the CUSJ's TAACCCT Grant-Funded Program.
    (d) Provide resources to support education / training.
    (e) Propose innovative and effective methods for curriculum development and program design to address specific industry needs.
    (f) Articulate credits transferability for the completion of a bachelor degree at an accredited higher education institution.

In order to illustrate the project's input, priorities, outputs and outcomes, their relationships and evaluation moments, a Logic Model was developed.

Logic Model


Formative Evaluation
Summative Evaluation
Inputs
Priorities
Outputs
Outcomes
Short
Medium
Long
Project Director
Project Coordinators
Faculty
Instructional Designers
Multimedia Developers
Infrastructure
Technology
Budget
1: Improve physical infrastructure for Blended and Online Delivery Learning Technology
2: Modify an associate degree program for online accelerated delivery to meet the needs of TAACCCT
3: Provide online tutoring and academic services
Educational Opportunity Center (EOC)
Eight online delivery technology-equipped classrooms
Seven blended & online accelerated courses
Participants Enrollment
Student tracking system
Articulation Agreement with a 4 year institution
Contracts
Early Warning System
Educational materials
Participants Enrolled 110
(55 – Second year)
(55 – Third year)
Retention 60
(90% retention rate)
(45 – Second year)
(81 – Third year)
Associate Degree Program completion 85
(77% graduation rate)
Enrollment in further education after program completion 31 (29%)
Participants employed within three months of completing program 45 (41%)
20 – Third year
25 – Fourth year
Retained in employment after completing program 40 (37%)
20 – Third year
20 – Fourth year
Permanent Capacity Building
Employed at enrollment who received and increase in wages 12 (11%)
Participation
Displaced workers
Other adults
External Factors:
* Employment projections
* Economic crisis
* Licensing and Program Accreditation
* Partners participation

Implementation Research Questions and Analysis Design

All activities and processes were compared to the ones proposed in the Project's Logic Model. All data (document reviews, interviews with key personnel, timelines, purchase orders, etc.) was analyzed to determine to what extend each priority was addressed as intended, which was/were not, and why, and what other courses of action were taken to improve the project's implementation. Implementation findings were used to continuously update stakeholders and to improve program.

Context Evaluation

Data Source	Evaluation Methods
F1. How was the particular curriculum selected, used, and / or created?	
• Interview faculty, Academic Program Director, Coordinators, Partners (if involved)	• Evidence of curriculum selection through interview with professors, Departmental Curriculum Committee reports, CUSJ program curriculum analysis, analysis of evidence of partnerships involvement.
F2. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program? ***a. What assessment tools and processes were used?*** ***b. Who conducted the assessment?*** ***c. How were the assessment results used?*** ***d. Were the assessment results useful in determining the appropriate program and course sequence for participants?*** ***e. Was career guidance provided, and if so, through what methods?***	
• Review Assessment results in participants' files to ascertain criteria used to select participants into the grant program through initial interview with Project personnel, and evidence of: (a) assessment tools and processes used, (b) coordination with TAA, (c) rubrics, guided interviews, (d) signature of authorized TAA and TAACCCT project staff, (e) meeting minutes, (f) career guidance provided, (e) data used for recruitment purposes, etc.	• Interviews with TAA and Project staff. • Document analysis, including recruitment documents, participant files, enrollment documents, and others.

Input Evaluation

Data Source	Evaluation Methods
F3. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of: • ***Program design*** • ***Curriculum development*** • ***Recruitment*** • ***Training*** • ***Placement*** • ***Program management*** • ***Leveraging resources*** • ***Commitment to program sustainability*** ***a. What factors contributed to partners' involvement or lack of involvement in the program?*** ***b. Which contributions from partners were most critical to the success of the grant program?*** ***c. Which contributions from partners had less of an impact?***	
• Evidence of contributions made by various partners, as applicable, in terms of program design, curriculum development, recruitment, training, placement, program management, leveraging of resources and commitment to the program sustainability through TAACCCT Consulting Committee minutes, programs revisions, embedded assessment data, graduating student profile revisions, employer and student internships evaluation results, employer surveys and others.	• Student and employer evaluation of their respective experience in the Program internship • Document review of signed agreements • Analysis of student reflexive diaries, forum entries, peer and self-evaluation results, discussion boards, blogs wikis, journals and any such entries as established in the Program's courses • Follow-up to employers of employed project graduates • Evidence of enrollment at the next higher educational level at CUSJ or other according to results of the Graduate Student Exit Interview with the Placement Officer • Surveys on partners on their experience with the project

Process Evaluation

Data Source	Evaluation Methods
F4. How was the program design improved or expanded using grant funds? ***a. What delivery methods were offered?*** ***b. What was the program administrative structure?*** ***c. What support services and other services were offered?***	
• Prior Departments' Academic offerings and current offerings with the project Certificate programs • Prior and current methods of delivery, administrative structure, and support services and other services provided.	• Document analysis of official academic documents, CUSJ website, CUSJ Catalog, course syllabi and others to compare Academic Programs offered before and after the project (overall enrollment, previous curricular structure, curricular sequences, delivery strategies used, etc.)

Limitations

Any evaluation, as a process inserted within a constricted context – influenced by internal and external factors – may encounter numerous and diverse challenges that could interfere with the evaluation plan proposed. As with research, the methodology proposed is based on the expected circumstances and known variables, and must identify limitations that the given methodology presents to results, conclusions and interpretation. Some of the limitations were:

1. Inability to adapt an experimental or quasi experimental design:
    - Causality relationships are limited due to the fact that the Project could not perform a random assignment for students to control and experimental groups. Every student who enrolled in any eligible academic program received the same services and treatment as any TAA eligible participant.
    - Inability to control or moderate external variables that prevented eligible TAA participants to enroll in the Associate Degree programs (disposition, motivation, distance, personal circumstances, etc.).
    - Diversity in the participants' profile (TAA eligible participants not necessarily have the same experiences and background than other participants, especially participants who are not TAA eligible) which limited the possibility of matching, needed for a quasi-experimental approach.
2. Small sample size:
    - The CUSJ's current capacity limits the amount of participants that can enroll at the Institution. Each cohort enrolled in any eligible academic program had a

small size, for some programs as small as less than 10 students enrolled in each academic term.

- Evaluation results cannot be generalized to other populations or educational settings.

3. Limited partners' involvement:
   - Most people who constitute the different Institutional and Project Committees perform many tasks that limited their availability for meetings.
4. Challenges related to students and graduates follow-up:
   - The institution in unable to control external factors that may prevent contact efforts with participants once they leave or complete their certificate programs (E.g. changes in phone numbers, postal and email addresses). Even though many efforts, using different communication means, were made, student participation in follow up surveys was limited (less than 15 participants completed the questionnaires).
   - Some of the project's expected outcomes required additional time to be observed and analyzed.
5. Evidence availability:
   - TAACCCT Round 2 Project staff and Director worked hard for project implementation, but little information was documented in forms of memorandum, minutes, agreements, agendas, working plans, which made difficult data collection and analysis. Most of the information used on this evaluation report was collected through informal conversations with project staff and CUSJ personnel.

Findings

Context Evaluation Results

F1. How was the particular curriculum selected, used, and / or created?

As explained and documented on the CUSJ Core Activity 1 Report, a rigorous analysis on employment opportunities in the field of Electronics Engineering was made. Documents, such as *Projections for Fields and Occupations* by the Department of Labor and Human Resources of Puerto Rico, *Electrical and Electronics Engineering Technicians* by the U.S. Bureau of Labor Statistics were analyzed by CUSJ staff, in order to better address qualifications expected by employers on the Technology and Engineering fields.

A curriculum revision was made on 2012**.** It included the analysis of courses content (*Core learning concept analysis on the courses content of the Associate Degrees in Technology*), development of curricular maps for course alignment, and the alignment analysis of CUSJ Science and Technology courses with the Bachelors' Degree on Engineering at the Polytechnic University of Puerto Rico. Also, a Consulting Committee was established, made up by Faculty and Professionals in the field (nine members**)**. A questionnaire was administered to Consulting Committee members, asking about how the graduates' profile aligned to the qualifications and expertise needed and expected in employees. Its results provided insightful information that was used to help revised the curriculum (for the Technology in Instrumentation and Electric Power Associate Degrees), and for the development of the new curriculum (Technology in Electronics Engineering) (*Core Activity 4: Service / Product Delivery – Consulting Committee Evaluation of Programs Alignment with the Labor Force).*

Recommendations made by employers, in consultation with the Committee and faculty members who teach Science and Technology courses at CUSJ, provided information on the competencies to be achieved by students in the Science and Technology programs, and contributed to develop an updated curriculum for the three associate degrees (Technology in Electric Power, in Instrumentation, and in Electronics Engineering).

F2. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select participants into the grant program?

As a Higher Education Institution, the CUSJ has an enrollment process that applies to all potential students. Participants are selected based on their enrollment application. All the students who enrolled in the Technology in Electronics Engineering, Electric Power, and Instrumentation on January 2014 and later. No in-depth assessment of participants' abilities, skills, and interests were conducted in order to select participants into the grant programs.

a. What assessment tools and processes were used?

No assessment tools or processes were used to assess participants' abilities, skills, and interests. Nonetheless, all students must complete the enrollment process (available at http://www.cunisanjuan.edu/):

For first year students:

1. Complete the enrollment form.

2. Pay the admission fee ($15.00).
3. Complete a medical form.
4. Provide evidence of vaccination (Form P – Vac 3) (for students with 21 or less years old).
5. Provide an official high school credits transcript (or GED evidence) with a GPA of, at least, 2.00,
6. Provide the *College Entrance Exam Bureau* (CEEB) test results (for students 21 or less years old).
7. Provide a copy of the birth certificate.

For transfer students:

1. Complete the enrollment form.
2. Pay the admission fee ($25.00).
3. Complete a medical form.
4. Provide evidence of vaccination (Form P – Vac 3) (for students with 21 years old or less).
5. Provide an official credit transcript from the preceding Higher Education Institution (HEI) with 12 or more credits approved.
6. Provide a copy of the birth certificate.

In order to be accepted into the CUSJ, students must comply with all documentation within the established deadline. Documents are reviewed by the Registrar's Office and admittance is granted.

b. Who conducted the assessment?

All student admittance into de CUSJ is performed by the Registrar's Office. After the review of student documentation (Enrollment application, High school transcript, *College Entrance Exam Bureau* (CEEB) test results), student is contacted to be informed of his/her enrollment status. Afterwards, the student must enroll in the corresponding courses, based on his/her chosen academic program.

c. How were the assessment results used?

The only assessment performed by CUSJ in order to select participants is the enrollment process. If a student complies with all requirements (documentations, deadlines, etc.) he/she is accepted into the academic program of his/her choosing. There is no conditional admittance to any of the participating academic programs.

d. Were the assessment results useful in determining the appropriate program and course sequence for participants?

Course sequence is established by the curricular sequence, which determines the appropriate course sequence based on the academic program selected by the student (in case of this Project, the following associate degrees: Technology in Electric Power, Instrumentation, or Electronics Engineering). For transfer students, a transcript from the preceding Higher Education Institution (HEI) is requested and evaluated to determine courses validation.

e. Was career guidance provided, and if so, through what methods?

Academic counseling is in charge of the Department Director, whom coordinates with the faculty members the orientation to be given to each student. It is a voluntary process for students. The process includes:

1. Students are assigned to a professor. Student lists are announced and the available schedule of each professor is informed to the student community.
2. Students who are interested in academic counseling visit his/her assigned counselor (professor).
3. The professor reviews the student academic transcript and evaluates his/her academic achievement, in accordance to the Institutional academic progress norm and the student's academic program.
4. The professor recommends courses based on the student's academic program and professional interests.
5. The student selects the courses he/she wished to take on the next academic term.

Input Evaluation

F3. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of:

- ***Program design***
    - The CUSJ personnel were responsible of the TAACCCT Round 2 program design and implementation. The following staff positions were hired to run the TAACCCT Round 2 project:
        - Project Director
        - Academic Coordinator
        - Three Tutors
        - Two Instructional Designers
        - Blackboard platform Administrator
        - Three Multimedia Developers
    - Courses were created by professors from the CUSJ, while instructional modules were developed by contracted personnel (15 professors for the corresponding fields). When appropriate, current faculty members from the CUSJ developed the instructional modules to be incorporated into the online educational materials available through the Blackboard platform. For new coursed, additional personnel was hired when needed (professionals from the Engineering field, with credentials and experience in the field).

- ***Curriculum development***
    - The curriculum for the Associate degree in Technology in Electronics Engineering was developed by the CUSJ Dean of Academic Affairs Office, CUSJ faculty members, with collaboration from the Consulting Committee. CUSJ faculty members developed the curricular maps for the three associate degrees, to ensure the appropriate course alignment.
    - The Consulting Committee played an important role in identifying the professional competencies needed in the Electronics, Instrumentation and Electric Power fields, to make sure the three programs work towards preparing capable professionals with better employment possibilities and opportunities.

- ***Recruitment***
    - The Local US Department of Labor's Trade Adjustment Assistance collaborated with the CUSJ with participant recruitment by:
        - Providing lists of potential TAA participants to the CUSJ, which allows the institution to contact, through phone calls, emails, and letters, during years 2013 - 2015.
        - Inviting the CUSJ to participate in job fairs offered in different municipalities (Aguadilla – West, Aibonito – Center, Luquillo and Las Piedras - East) during year 2014.
        - Providing opportunities to the CUSJ to provide orientations to TAA eligible participants.

- ***Training***
    - Faculty training was provided by the CUSJ and by the Polytechnic University of Puerto Rico (PUPR)

Title	Date	Place where the training took place
How to create educational modules	11/6/2014	Colegio Universitario de San Juan
Blackboard I	8/27/2013	Polytechnic University of Puerto Rico
Blackboard II	8/29/2013	Polytechnic University of Puerto Rico
Blackboard III	9/10/2013	Polytechnic University of Puerto Rico
Smartboards	9/16/2013	Colegio Universitario de San Juan
Blackboard Forum Puerto Rico	9/19/2013	Inter American University of Puerto Rico
Online courses	9/20/2013	Colegio Universitario de San Juan
Blackboard I	12/1/2016	Colegio Universitario de San Juan
Blackboard	11/9/2015	Colegio Universitario de San Juan
Smartboards	8/23/2014	Colegio Universitario de San Juan
Smartboards	8/13/2014	Colegio Universitario de San Juan
Smartboards	8/13/2014	Colegio Universitario de San Juan
Smartboards	8/11/2014	Colegio Universitario de San Juan
Smartboards	8/14/2014	Colegio Universitario de San Juan

    - As part of the three eligible associates degrees at the CUSJ curricula, students must enroll in a practice experience in their fields of study. The companies that provided those experiences are included in the following table.

Companies and agencies	
AEE	LGM Electrical Service
Bacardí	Lilly del Caribe
Brother Electric	Municipaty of Caguas
Carrion tech	Municipality of San Juan
Ciracet	PRAT Universidad de Puerto Rico
CUSJ	Pure Power Protection
Electrician Julio Bonilla	Roberto Falu
Electrician Ricardo Cruz	Tomas Cuerdas, Inc.
LabCare	UPR

- ***Placement***
    - The Placement Officer hired as part of the CUSJ TAACCCT Round 3 staff provided services to TAACCCT Round 2 students, to identify potential employers, help prepare resumes, and provided assistance in job search.

- ***Program management***
    - The Polytechnic University of Puerto Rico (PUPR) invited the TAACCCT Round 2 Project staff (Project Director, Academic Coordinator, Faculty members) to different trainings, which provided the CUSJ staff with educational tools to better serve TAACCCT Round 2 students. Also, they offered “open houses” to encourage students to enroll in a bachelor’s degree in an Engineering-related program at the PUPR.

- ***Leveraging resources***
    - The Municipality of San Juan (MSJ) managed the financial component of the TAACCCT Round 2 Project, and contributed by maintaining the financial records, purchase orders, payment history and budget.

Personnel for the MSJ prepared the quarterly financial reports for the TAACCCT Round 2 Project.

- The CUSJ was awarded the TAACCCT Round 3 Grant, which allowed the institution to provide assistance to TAACCCT Round 2 participants in job placement.
- The Polytechnic University of Puerto Rico (PUPR) provided training to the CUSJ Faculty on the use of *Blackboard,* Smartboards, and other technology to improve the educational experience at the CUSJ.

- ***Commitment to program sustainability***

  a. What factors contributed to partners' involvement or lack of involvement in the program?

  Proper written agreements (memoranda, meeting agendas, follow-up emails) were needed for accountability. Documentation was not readily available and information on project achievements and challenges were not properly communicated to the educational community nor the partners. This situation contributed to a lesser involvement on part of partners.

  b. Which contributions from partners were most critical to the success of the grant program?

  The PUPR long term commitment with the CUSJ was important for project success. Their contributions in curriculum revision, credit transfers and personnel training were important for proper project development and implementation.

c. Which contributions from partners had less of an impact?

Local TAA office collaboration for TAA eligible participants had the least impact in project success due to the low enrollment rate of TAA eligible participants at the CUSJ. Even though the TAA provided contact information on TAA eligible industries, and organized many job fairs and orientations in which the CUSJ participates, those efforts were ineffective.

Process Evaluation

F4. How was the program designed, improved or expanded using grant funds?

The CUSJ used the TAACCCT Round 2 grant to improve its infrastructure, to develop a new associate degree in Electronics Engineering Technology, to develop online educational modules of its existing academic offering (general courses) to improve the educational experience of all students at the CUSJ. Also, provided much needed tutoring services and training on technology and educational strategies for faculty members and project personnel.

a. What delivery methods were offered?

Courses were offered with technological assistance, using Blackboard. Complementary and Supplementary materials were included in the platform. Seven courses were developed for accelerated delivery (8 weeks sessions). Some courses were offered in a mixed methods approach, where students tool classes on campus with one professor. Later, students would log in into the Blackboard platform and

complete complementary materials assigned by a collaborating professor. Student comments on different aspects of the project are included.

Comments on how students feel courses with technology assistance enriched their educational experience at the CUSJ

“Es mucho más fácil ya que no tienes que estar con el papeleo. Solo haces lo que te asignan y ya”
"Me aburro, ha ayudado mucho”
“Son una herramienta excelente para hacer trabajos "online" (Siempre y cuando exista la asistencia del profesor).”
“No”
“Normal”
‘El sistema Blackboard, me parece muy útil para compartir información, así como trabajos de los cursos sin tener que entregar documentos en "hard copy".’
“Sí” (2)
“La verdad, si se provee información, pero no es igual cuando tu profesor está ahí de frente para hacerle preguntas cuando surjan, mientras explica el material de clase.”
“Con los cursos obtenidos a través del Blackboard, fue muy enriquecedora ya que aprendí un nuevo método de estudio además del presencial”

What students liked the most from the TAACCCT Round 2 eligible programs

“Profesores preparados y no dejaban dudas”
“La ciencia que hay detrás de todo y saber cómo controlar la corriente correctamente. Pero lo más que me gusto fue Algebra Booleana.”
“La manera de dar clase sus profesores”
“Los laboratorios y el trabajo técnico y los dibujos técnicos”
“Que es como un área técnica, pero con mayor preparación. Que puedo trabajar tanto independiente o como empleado.”
“Tengo experiencia en el área eléctrica, he trabajado como electricista y es el área de trabajo que me apasiona.”
“Tiene buena diversidad de cursos, y los profesores son muy buenos.”
“Todo (3)”
“Sus grandes oportunidades de empleo que tiene en el campo”

What students disliked from the TAACCCT Round 2 eligible programs

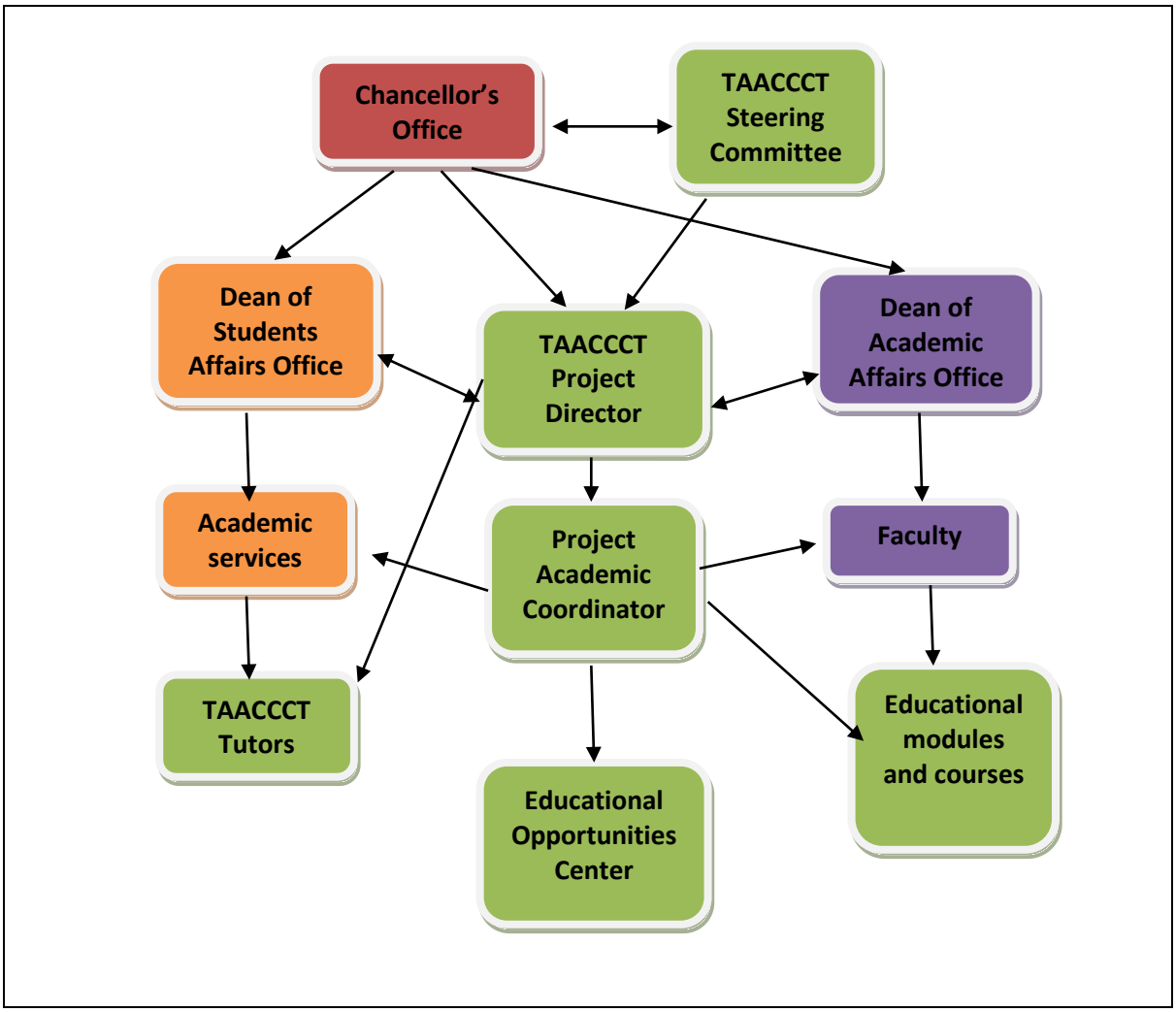
"Que un profesor daba una clase online y era otro el que daba la presencial siendo la misma clase"
"Es necesarios actualizar algunos equipos de laboratorio, ya que muchos de ellos están en malas condiciones."
"Lo encuentro muy completo, pero si tuviera más horas de laboratorios el estudiante saldría con más práctica
"No puedo decir con exactitud que algo no me gusta. La verdad la gran mayoría me gusta."
"Que las oportunidades de empleo son un poco escasas aquí en la isla (al menos desde mi punto de vista)."
"La clase de Química, ya que el profesor que me dio la clase, no supo enseñar bien el material"

Services that the CUSJ could offered to improve its academic programs

"Que las clases online y la presencial sea el mismo profesor"
"Añadir cursos de practica para revalida de licencia de perito electricista y añadir curso certificado para instalación de sistemas fotovoltaicos."
"Curso de microchip"
"No estudiar los viernes"
"Ofrecer las materias de la carrera todos los semestres. Hay materias que por la población estudiantil no ser muy abundante no se imparten un semestre, pero el otro sí. hay materias que se podrían impartir on-line, que no fuera presencial."
"Proveer más y mejores equipos (electrohidráulica y neumática)"
"Que no todo sea BlackBoard como muchas clases. Para otras personas les gusta. Pero en lo personal, no me agrada mucho."
"Sus clases muy interesantes"

b. What was the program administrative structure?

The TAACCCT Round 2 Project adopted the administrative structure used by the Sciences and Technology Department at the CUSJ. The following organizational chart shows project personnel, and how the project was inserted within the CUSJ administrative structure.



c. What support services and other services were offered?

Among the support services provided by the TAACCCT Round 2 Project were:

Tutoring

A total of 345 tutoring sessions (individually and groups) were recorded from January 2015 to March 2016. Previously, tutoring services were offered but no record was kept. A total of 66 students attended tutoring sessions to address different contents. Students receiving tutoring services related to different courses were matched to the grades obtained by the students. A total of 116 courses and grades were

obtained and categorized based on the grades achieved. An analysis on students grades on tutoring related courses was made, and results are shown in the following table.

Contents	Approved		Not approved		Withdrawal		Total
	f	**%**	***f***	**%**	***f***	**%**	***f***
Physics	40	86.96	2	4.35	4	8.70	46
Photovoltaics	4	100.00	0	0.00	0	0.00	4
Chemistry	4	100.00	0	0.00	0	0.00	4
Electronics	16	100.00	0	0.00	0	0.00	16
Math	25	89.29	3	10.71	0	0.00	28
Direct Current	2	100.00	0	0.00	0	0.00	2
Alternate Current	16	100.00	0	0.00	0	0.00	16
TOTAL	***107***	***92.24***	***5***	***4.31***	***4***	***3.45***	***116***

Notes. "Approved" included courses in which student got a grade of "A", "B" or "C". "Not approved" includes grades "D" and "F".

Most students achieved a grade of "C" or higher on the courses for which they took tutoring sessions (92.24%). This indicates that tutoring services were successful in providing students with appropriate tools that allowed students to pass their courses.

Technology assistance

Trainings on how to use the *Blackboard Platform* were given to students, and students who needed additional assistance would attend the *Educational Opportunities Center* (EOC) to receive the service.

Job fair

In October 2015, TAACCT Round 3 Project Job Placement Coordinator, in collaboration with the TAACCCT Round 2 Academic Coordinator organized a job fair in which the following companies and agencies participated. A total of 505 participants assisted to the event.

Companies and agencies	Employment fields
Helvedia del Caribe	Industries and Technology / Administration
Target Marketing Service and Human Resourses Solutions	Administration
DirecTV	Industries and Technology / Information Systems
Departamento del Trabajo / Negociado de estadísticas del mercado laboral	Different professional fields
Super Max	Administration / Accounting / Electric Power
Infotech	Industries and Technology / Administration
Pepsi Cola	Industries and Technology / Electric Power
Wal-Mart	Industries and Technology / Administration
Primerica	Administration
Paparazzi Accessories	Administration and Sales
Menaneuca	Administration and Sales
Border Patrol	Criminal Justice
Industria Lechera	Industries and Technology / Electric Power
PYMES	Different professional fields
Departamento de Vivienda y Desarrollo Comunal	Different professional fields
DEA	Criminal Justice
Hospital Pediátrico	Nursing / Chirurgic Technology / Office Systems
Policía Municipal de San Juan	Criminal Justice
Open Mobile	Industries and Technology / Administration
Picalo	Different professional fields
Salud Capital Hoare	Nursing / Chirurgic Technology
ADECCO	Different professional fields

Product Evaluation

To what degree did the program achieve its stated short, mid, and long-term outcomes?

The CUSJ TAACCCT Round 2 established nine short, mid, and long-term outcomes. Each one, with its corresponding achievement rate is presented in the following table:

Outcomes	Indicators	Expected	Achieved	Achievement rate
1. Total Unique Participants Served	Cumulative total number of individuals entering any of the grant-funded programs offered	110	192	174.55%
2. Total Number of Participants Completing a TAACCCT-Funded	Number of unique participants having earned all of the credit hours (formal award units) needed for the award of a	85	16	18.82%

Outcomes	Indicators	Expected	Achieved	Achievement rate
Program of Study	degree or certificate in any grant-funded program			
3. Total Number of Participants Still Retained in Their Program of Study or Other TAACCCT-Funded Program	Number of unique participants enrolled who did not complete and are still enrolled in a grant-funded program of study	19	54	284.21%
4. Total Number of Participants Completing Credit Hours	Total number of students enrolled that have completed any number of credit hours to date.	104	156	150.00%
5. Total Number of Participants Earning Credentials	Aggregate number of degrees and certificates completed by participants in grant-funded programs of study	85	15	17.65%
6. Total Number of Participants Enrolled in Further Education After TAACCCT-funded Program of Study Completion	Total number of students who complete a grant-funded program of study and enter another program of study	31	4	12.90%
7. Total Number of Participants Employed After TAACCCT-funded Program of Study Completion	Total number of students (non-incumbent workers only) who completed a grant-funded program of study entering employment in the quarter after the quarter of program exit	45	1*	2.22%*
8. Total Number of Participants Retained in Employment After Program of Study Completion	Total number of students (non-incumbent workers only) who completed a grant-funded program of study and who entered employment in the quarter after the quarter of program exit who retain employment in the second and third quarters after program exit	40	*	*
9. Total Number of Those Participants Employed at Enrollment Who Received a Wage Increase Post-Enrollment	Total number of students who are incumbent workers and who enrolled in a grant-funded program of study who received an increase in wages after enrollment	12	1*	8.33%*

**Only one participant provided information regarding his employment status, thus limiting the availability of information on employment performance indicators and outcomes.*

Detailed information on outcomes 1, 2, 4, 6, 7, 8 and 9 is presented in the Effectiveness evaluation section. Outcome 3 was related to student retention rates at the CUSJ. The results are shown in this section.

Outcome 3: Total Number of Participants Still Retained in Their Program of Study or Other TAACCCT-Funded Program

Retention rate was determined by considering participants who enrolled in the academic term FA-16 (August 2016). In the following table, the amount of retained students by cohort and academic program are shown.

Academic program	Students retained during FA-16, by admission term						Total
	FA-13	WI-14	FA-14	WI-15	FA-15	WI-16	
Electronics Engineering Technology	1	0	2	0	2	0	***5***
Electric Power Technology	5	3	7	5	8	3	***31***
Instrumentation Technology	1	2	2	3	9	1	***18***
Other academic programs	0	1	3	0	0	0	***4***
Total	***7***	***6***	***15***	***8***	***19***	***4***	***58***
Retention rate	***10.77%***	***27.27%***	***37.50%***	***36.36%***	***61.29%***	***33.33%***	***30.21%***

The average retention rate for participants at the CUSJ was 30.21% (in any academic program). It was stated that, by the end of the Project, 19 students would be retained in eligible programs. Fifty-four (54) participants were retained in eligible programs (28.13%).

S1. Were the seven blended and online accelerated courses of the Associate Degree in Electronics Engineering Technology ready by the expected date?

The TAACCCT Round 2 Project Statement of Work (SoW) was approved on February 2013 (one year and five months later that the expected start date on October 2012). This delay affected the project implementation, since no personnel could be hired and no activities could be performed until the Department of Labor of the United

States of America (DoL) approved the SoW. All project activities were delayed, including the development and offering of the seven blended and online accelerated courses of the Associate Degree in Electronics Engineering Technology. Nonetheless, all accelerated courses were completed by the end of the project's third year, as stated in the SoW.

Initially, the following courses, with their corresponding laboratories were included in the Project. These courses would be created (since the Associate degree in Electronics Engineering Technology was recently developed by the CUSJ), and educational online modules would be developed to complement the educational experience of students.

Core courses

Course ID	Course name	Credit hours	Theory hours	Laboratory hours
TIEL1000	Introduction to Technical Drawing	3	online	0
TIEL 2000	Advance Electronics	3	online	0
TIEL 2001	Communications Electronics	3	online	0
TIEL 2002	Industrial Electronics, Calibration and Controls	3	online	0

Laboratories

Course ID	Course name	Credit hours	Theory hours	Laboratory hours
TIEL 2000L	Lab. Advance Electronics	1	0	6
TIEL 2001L	Lab. Communications Electronics	1	0	3
TIEL 2002L	Lab. Industrial Electronics, Calibration and Controls	2	0	12

Accelerated courses were to be offered during the third and fourth semesters (as stated in the curricular sequence revised on February 2013), in sessions of eight weeks of extension. All the educational modules related to the accelerated courses were created by August 2015.

Additional courses were modified to include online educational modules available through the Blackboard platform. Those courses are part of the core courses for the Associate degrees in Technology in Instrumentation and in Electric Power.

Course ID	Course name	Creation date	1	2	3
ADAP 1101	Adaptating to University Life	October 2014	✓	✓	✓
TEEL 1011	Direct Current (DC)	October 2014	✓	✓	✓
TEEL 1011L	Direct Current (DC) Lab	September 2014	✓	✓	✓
CISO 1101	Social Sciences I	May 2015	✓	✓	✓
MATE 1151	Pre - Calculus I	October 2014	✓	✓	✓
FISI 2013	Physics I	October 2014	✓	✓	✓
FISI 2013L	Physics I - Lab	December 2014	✓	✓	✓
TEEL 1012	Alternate Current (AC)	September 2014	✓	✓	✓
TEEL 1012L	Alternate Current (AC) Lab	October 2014	✓	✓	✓
TEEL 1048	Introduction to Electronics	October 2014	✓	✓	✓
TEEL 1048L	Introduction to Electronics Lab	September 2014	✓	✓	✓
FISI 2014	Physics II	May 2015	✓	✓	✓
FISI 2014L	Physics II - Lab	May 2015	✓	✓	✓
ESPA 1101	Spanish I	December 2014	✓	✓	✓
ESPA 1102	Spanish II	May 2015	✓	✓	✓
TIEL1000	Introduction to Technical Drawing	August 2015	✓		
TIEL 2000	Advance Electronics	May 2015	✓		
TEEL 2151	Digital Electronics	May 2015	✓	✓	✓
TIEL 2001	Communications Electronics	May 2015	✓		
TEEL 2008	Programmable Logic Controllers (PLC)	May 2015	✓	✓	✓
TIEL 2002	Industrial Electronics, Calibration and Controls	August 2015	✓		
TIPE 2007	Field practice in Electronics (100 hours)	August 2015	✓		
TIEL 2000L	Lab. Advance Electronics	May 2015	✓		
TEEL 2151L	Lab. Digital Electronics	May 2015	✓	✓	✓
TIEL 2001L	Lab. Communications Electronics	May 2015	✓		
TEEL 2008L	Lab. Programmable Logic Controllers (PLC)	May 2015	✓	✓	✓
TIEL 2002L	Lab. Industrial Electronics, Calibration and Controls	May 2015	✓		

Note. 1 = Electronics Engineering Technology; 2 = Technology in Electric Power; 3 = Technology in Instrumentation. Highlighted courses are exclusive of the Associate degree in Electronics Engineering Technology.

Impact Evaluation

S2. Was the intended audience served? How many participants were TAA eligible? How many were displaced workers?

The intended audience of the TAACCCT Round 2 Project at the CUSJ included all newly enrolled (from academic term FA-13 and on) in the three funded programs. During the project implementation, 192 students were served. Their characteristics are shown below.

Demographics

Gender	Frequency	Average age	Minimum	Maximum	Mode	Median
Female	10	17.96	25	43	17	17
Male	182	23.90	16	56	17	20
Total	***192***	***22.38***	***16***	***56***	***17***	***18***

Age distribution

Age group	Frequency	Porcentage
Information not available	1	0.52
16 – 21	130	67.71
22 – 25	23	11.98
26 – 35	17	8.85
36 – 45	13	6.77
46 and up	8	4.17
Total	192	100.000

At time of admission, the age mean of participating students was 22.38 years. Age ranged from 16 years old to 56 years old. Most of the students were male (95.83). Even though initially the TAACCCT Round 2 Project targeted TAA eligible participants

and displaced workers, services were extended to other adults who chose to enroll in the funded programs.

The CUSJ made many efforts to recruit TAA eligible participants (Included information on its web pages explaining the TAA program, and participated in job fairs organized by the WIA Office at Puerto Rico), but only three TAA eligible participants were enrolled at the CUSJ.

1. Companies contacted (four cycles)

Cycle 1

Company name	Number of employees	Follow-up calls	
Checkpoint Caribbean	128	9/17/2013	11/13/2013
Hanes Menswear	81	10/7/2013	12/5/2013
Heraus Noblelight	15	10/25/2013	12/6/2013
Hewelt Packard Caribe	53	10/28/2013	12/9/2013
Biovail Laboratories	124	11/4/2013	12/14/2013
General Electric	100	11/5/2013	
TOTAL	***501***		

Cycle 2

Company name	Number of employees	Follow-up calls	
Baxter	30	3/31/2014	5/15/2014
Osram	21	4/3/2014	5/20/2014
Micron	18	4/7/2014	5/27/2014
General Electric	68	4/23/2014	6/5/2014
3M del Caribe	38	4/28/2014	6/10/2014
TOTAL	***175***	5/9/2014	6/24/2014
		5/14/2014	

Cycle 3

Company name	Number of employees	Follow-up calls		
Salinas **	162	6/25/2014	9/29/2014	2/11/2015
TOTAL	***162***	7/3/2014	1/17/2015	2/15/2015
		7/7/2014	1/20/2015	2/16/2015
		7/15/2014	1/26/2015	

Cycle 4

Company name	Number of employees
General Electric	105
TOTAL	***105***

Follow-up calls

2/19/2015 List received by the CUSJ

2. Emails and letters sent (dates)

Emails	
10/7/2013	7/11/2014
10/30/2013	7/17/2014
1/4/2014	7/18/2014
5/28/2014	8/11/2014
6/23/2014	10/2/2014
6/25/2014	10/6/2014
7/3/2014	10/10/2014
7/8/2014	10/27/2014
8/6/2014	2/24/2015

Letters			
9/4/2013	4/23/2014	9/8/2014	1/22/2015
9/10/2013	5/9/2014	9/9/2014	1/23/2015
10/1/2013	6/9/2014	7/15/2014	1/24/2015
10/7/2013	9/1/2014	7/29/2014	1/25/2015
11/14/2013	9/2/2014	10/22/2014	1/26/2015
11/4/2013	9/3/2014	1/16/2015	1/27/2015
12/6/2013	9/4/2014	1/17/2015	1/28/2015
1/7/2014	9/5/2014	1/18/2015	1/29/2015
4/1/2014	9/6/2014	1/20/2015	1/30/2015
4/7/2014	9/7/2014	1/21/2015	

3. Orientations provided during local TAA events

Dates	
10/25/2013	6/24/2014
8/23/2014	6/25/2014

4. Follow-up to prospective students

Compañy name	Prospects
3M	26
Salinas **	66
Baxter	4
General Electric	36
Micron	1
Checkpoint Caribbean	21
Sylvannia	2
Hewlet Packard	4
Hanes Menswear	4
Bioval	25
Heraus Nobelight	2
TOTAL	***191***

A questionnaire was administered to active, inactive and graduated participants, in which questions regarding how they learned about the academic offering of the CUSJ. Text messages and phone calls, as well as multiple emails to personal and institutional accounts were sent, during a period of one month, to 127 project participants. Only 11 students completed the questionnaires.

How they learned about the CUSJ programs	Student status			Total
	Active	Inactive	Graduated	
TAA activity or job fair	1	0	0	**1**
CUSJ webpage announcement	2	1	0	**3**
Open house at the CUSJ	1	0	0	**1**
A friend referral	3	0	1	**4**
Other means	2	0	1	**3**

Many students who completed the questionnaire stated that they learned about the academic programs of the CUSJ by a friend referral (36.36%) or through the CUSJ webpage or other means (27.27% each).

Effectiveness Evaluation

S3a. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who were served?

Outcome 1: Total Unique Participants Served

The Project considered to be participant students first enrolled at the CUSJ on January 2014 or later in the Associate degree in Electronics Engineering Technology. January 2014 (WI-14) was the first academic term in which the Associate degree in Electronics Engineering Technology was offered. When the DoL indicated that all students served by the TAACCCT Round 2 projects would be counted as participants,

students from the Associate degrees in Instrumentation and in Electric Power were included.

A total of 192 students from the cohorts FA-13 (August 2013), WI-14 (January 2014), FA-14 (August 2014), WI-15 (January 2015), FA-15 (August 2015), WI-16 (January 2016) were served. Participants served by the TAACCCT Round 2 Project are shown by date of admission into the CUSJ and by their academic program.

Academic program	Students enrolled, by admission term						Total
	FA-13	WI-14	FA-14	WI-15	FA-15	WI-16	
Electronics Engineering Technology	-	3	10	1	4	2	***20***
Electric Power Technology	55	15	21	16	15	8	***130***
Instrumentation Technology	8	3	9	4	11	2	***37***
Other academic* programs	2	1	-	1	1	-	***5***
Total	***65***	***22***	***40***	***22***	***31***	***12***	***192***

**These students started in other academic programs, but later enrolled in one of the participating programs. For this reason, they were included in the total amount, as part of the cohort in which they first enrolled at the CUSJ.*

The academic program with the highest amount of enrolled students was Electric Power, with a total of 130 students enrolled during the TAACCCT Round 2 Project (67.71% of the participants). The second highest amount of participants was enrolled in Instrumentation (37, 19.27%). The program with the least amount of enrolled students was the Associate degree in Electronics Engineering Technology (20, 10.42%).

S3b. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who completed any number of credit hours?

Outcome 4: Total Number of Participants Completing Credit Hours

By the end of the academic term WI-16, a total of 186 out of the 192 participants enrolled in different courses, from which 156 completed, at least, one course with a grade of “A’, “B”, “C”, or obtained a Pass. This group enrolled in 6,125 credits, and approved 4,741 (77.40%).

S3c. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who graduated/obtained at least one credential?

Outcome 2: Total Number of Participants Completing a TAACCCT-Funded Program of Study

Twelve students form the first cohort (FA-13) completed their academic programs (one in WI-15, 11 in WI-16). This cohort achieved a graduation rate of 18.46% within a 100% of the time it takes to complete the associate degrees (two years and a summer). One student from the cohort (WI-14) completed the Associate degree in Instrumentation Technology on May 2015 (This student was a transfer student). A second student, from cohort (FA-14), completed the Associate degree in Instrumentation Technology on December 2015. From cohort WI-15, a student classified as a readmission student, completed the Associate degree in Electronics Engineering Technology in May 2016. Until summer 2016, 15 students completed any of the three eligible programs.

S3d. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who continued their education to a higher or complimentary level?

Outcome 6: Total Number of Participants Enrolled in Further Education After TAACCCT-funded Program of Study Completion

After completing the Associate degree in Instrumentation Technology, one of the participating students enrolled at the Polytechnic University of Puerto Rico in the Associate Degree in Mechanical Engineering (ADME) Other student who completed the Electric Power Technology enrolled in the same program at PUPR. Another two students who completed the associate degree in Electric Power Technology enrolled in the Mechanic Engineering and Electrical Engineering bachelor's degree at PUPR. Information on students enrolled at other Higher Education Institutions (HEI) was not available at the moment of this report.

S3e. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who obtained additional credentials after graduation?

Outcome 5: Total Number of Participants Earning Credentials

Since most graduated students completed their degrees in May 2016, there has not pass enough time for them to obtain additional credentials (certificates take, at least, one year, while other credentials (bachelors, masters, and doctorate degrees) take much longer to complete.

Employment

Regarding the recruitment of displaced workers, the CUSJ does not gathers employment status data of its students. Additional efforts to collect data on student employment at the date of admittance were made, but poor participation rate was achieved. Only 11 participants (nine active, one inactive, and one graduated) completed the questionnaires. Their answers to the employment related questions is included below.

Employment status at different periods during project implementation

Employment	Student status			Total
	Active	Inactive	Graduated	
Employed in a job related to their academic program at time of enrollment at the CUSJ	0	1	0	**1**
Employed in a job not related to their academic program at time of enrollment at the CUSJ	4	0	1	**5**
Not employed at enrollment at the CUSJ	4	0	0	**4**
Currently employed (program related)	0	0	1	**1**
Currently employed (not program related)	4	1	0	**5**
Currently unemployed	1	0	0	**1**
Continues unemployed	2	0	0	**2**
Was promoted at work while studying	-	-	-	**-**
Was assigned additional responsibilities at work	1	1	-	**2**
Received a wage increase while studying	2	1	-	**3**
Was promoted after graduating	-	-	0	**0**
Was assigned additional responsibilities at work	1	1	0	**2**
Received a wage increase after graduating	2	1	1	**4**

N = 11. Active students = 9, inactive students = 1, graduated students = 1

S3f. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who and/or were employed within three months after graduation?

Outcome 7: Total Number of Participants Employed After TAACCCT-funded Program of Study Completion

Multiple efforts were made to contact graduate students (by phone and emails). Only one participant provided information regarding his employment status. This participant indicated that, while studying at the CUSJ he got a job related to his academic program. He is currently employed at another company.

S3g. How effective was the project in achieving its goals in terms of the total number of participants (headcount) who retained their employment four to nine months after graduation?

Outcome 8: Total Number of Participants Retained in Employment After Program of Study Completion

Multiple efforts were made to contact graduate students (by phone and emails). Only one graduated participant provided information regarding his employment status. This student changed jobs, to one related to the funded program. After completing the program, he got a higher paying job. Since the academic programs included in the TAACCCT Round 2 Project were two years associate degrees, and the project start was delayed, there has not pass enough time to properly answer this question.

Sustainability Evaluation

S4. What partnerships were created that will benefit future participants? What did partners considered to be their contributions to project success?

Among the partnerships created by the TAACCCT Round 2 Project are the following organizations:

- Polytechnic University of Puerto Rico
    - The Polytechnic University of Puerto Rico is a continued partner. The PUPR has included the CUSJ in many of its Educational projects, funded by the Department of Education of the United States of America. After the TAACCCT Round 2 Project, the PUPR made an alliance with the CUSJ to provide services to students, under a Title V grant, to increase the amount of students who complete bachelor's degrees in Science and Technology fields.
    - The contributions of the PUPR to the CUSJ's TAACCCT Round 2 Project success are the curriculum revision, which allowed students to transfer more credits from the Associate degrees at the CUSJ to the Bachelor's degrees at the PUPR. The articulation agreement between the two HEI allows students to transfer as many as 53 credits from the Associate degree in Electric Power Technology, 50 credits from the Associate degree in Instrumentation Technology, and 46 credits from the Associate degree in Electronics Engineering Technology.

- Different companies that allow students to complete practice hours in the fields of Electronics, Instrumentation and Electric Power.

- During each academic term, the list of collaborators is revised, and new companies are added to provide students with different practices sceneries.

A list of companies and agencies that provided the CUSJ students with practice hours in their field (Instrumentation, Electric Power and Electronics), since FA-15 was provided.

Companies and agencies	Amount of practice opportunities provided
AEE	1
Bacardí	1
Brother Electric	1
Carrion tech	1
Ciracet	1
CUSJ	3
Electrician Julio Bonilla	5
Electrician Ricardo Cruz	2
LabCare	1
LGM Electrical Service	1
Lilly del Caribe	2
Municipaty of Caguas	2
Municipality of San Juan	2
PRAT Universidad de Puerto Rico	1
Pure Power Protection	1
Roberto Falu	1
Tomas Cuerdas, Inc.	2
UPR	7

Their contribution to the program success is extremely important, since these companies allowed students to complete 100 practice hours in their fields. This grants students with the necessary skills and job-related competencies to better success at their careers. In some cases, it opens opportunities to get employed by the same companies in which students made their practices.

S5. What is the impact of the project in the institution's capacity to improve and expand its academic offering through continued partnerships with businesses and industries beyond project completion?

As explained by Project and CUSJ staff, the CUSJ is currently in a consortium with the Polytechnic University of Puerto Rico (PUPR), under a Department of Education of the United States of America Post-Secondary Education Act - Title V grant. Both HEIs work toward increasing low – income, underrepresented groups in STEM fields, by providing additional services, such as tutoring, mentoring, advising, and counseling, to improve opportunities for these groups to pursue careers in Sciences and Engineering.

Continued partnerships with companies and agencies plays an important role for academic programs success. Many of the companies allows students to complete their practice hours in different workplaces have collaborated with the CUSJ for many years. A commitment by these partners to continue providing CUSJ students with appropriate workplaces to acquire the necessary experiences and competencies to succeed in their fields is observed.

S6. What is the impact of the project in the institution's capacity beyond project completion to increase the number of Hispanic displaced workers, underemployed workers or other adults and young adults in obtaining stackable and latticed credentials in areas of high demand in the world of employment?

The TAACCCT Round 2 Project allowed the CUSJ to improve and expand its academic offering by:

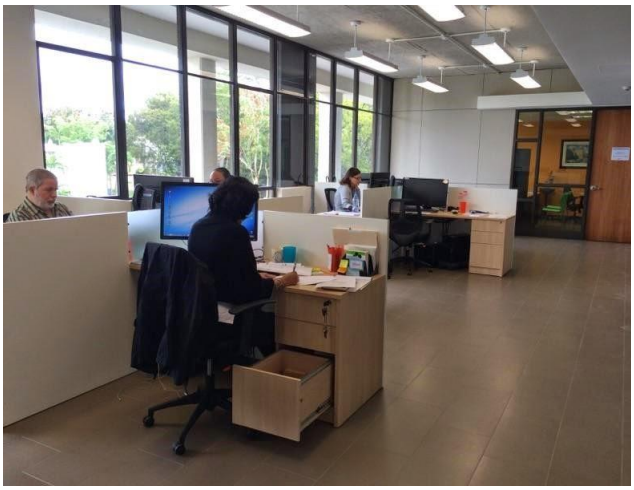
- Providing the resources needed to develop a new associate degree (Electronics Technology Engineering).
- Equipping the CUSJ with an Educational Opportunities Center (EOC) that continues to provide technology related services to students and faculty members. The EOC is comprised of:
    - One conference room equipped with 23 workstations, 20 laptop computers, a desk with a desktop computer connected to a *Smartboard*, and a television.
    - Two cubicles with four workstations each (a total of eight workstations)
    - A reception
    - Two private offices (currently occupied by TAACCCT Project personnel)
    - Two bathrooms (women and men)
    - Two storage rooms
    - One room equipped with video conference equipment.
- Equipping 21 rooms with smartboard technology that provided an enriched and diverse educational experience to students. Room numbers are listed.

- 106
- 110
- 111
- 112
- 113
- 202
- 204
- 205
- 206
- 210
- 211
- 212
- 213
- 302
- 307
- 309
- 310
- 311
- 312

Additionally, two smartboards were installed in the Chancellor's Office and the Educational Opportunities Center.

Educational Opportunities Center – Conference room

Educational opportujnities Center – Staff offices



- Adapting general courses (taken by students of different academic programs) offered at the CUSJ, into technologically assisted courses, with online educational modules.
- Providing tutoring services to improve academic achievement.
- Providing funding for a much needed second elevator that will improve access to laboratories, the library, and the EOC, among other services (currently under construction).

Impact Analysis

To ascertain the impact of the accelerated blended courses vs. traditional formats, Binomial distribution analysis (using the Z distribution), and one-tailed tests (upper tail) hypothesis testing was performed, using a significance level of .05. For the analyses, it was used the statistical software *PHStat2*. Courses approval rate from Project participants (students enrolled for the first time at the CUSJ in eligible programs, from August 2013 and forward) were compared to courses approval rate from the rest of the student population at the CUSJ. Course grades were transformed into three categories (*Approved, Not Approved, and Withdrawal*), and approval rates from courses taken by non-participants were used as the expected probability.

The hypotheses stated are:

$$H_0: The\ approval\ rate\ in\ modified\ courses\ of\ participants\ is\ equal\ to\ the\ approval\ rate\ in\ regular\ courses\ of\ non-participants$$

$$H_1: The\ approval\ rate\ in\ modified\ courses\ of\ participants\ is\ higher\ than\ the\ approval\ rate\ in\ regular\ courses\ of\ non-participants$$

The statistics analysis could be performed for 19 out of the 27 modified courses. Five courses showed statistically significant differences between the approval rates of both samples (FISI 2013L, MATE 1151, TEEL 1012L, TEEL 1048L, and TIEL 2000), meaning that participants achieved a higher approval rate than non-participants. This indicates that the modified courses were more effective than traditional courses. It should be noted that many of these courses are laboratories, which suggest that online educational modules help students better understand lab work. The general approval

rate for both populations was equal (68.00%), showing that both modalities are equally effective.

The results are shown in the next table.

Courses approval rate comparison (Binomial distribution)

Course	TAA participants		Non - Participants		Results	
	Total	Approval %	Total	Approval %	p-Value	Decision
ADAP 1101	126	0.66	2495	0.66	0.512	Do not reject the null hypothesis.
ADAP 1102	29	0.55	24	0.83	1.000	Do not reject the null hypothesis.
CISO 1101	396	0.62	7437	0.69	0.999	Do not reject the null hypothesis.
ESPA 1101	351	0.51	8127	0.59	0.998	Do not reject the null hypothesis.
ESPA 1102	144	0.69	5682	0.78	0.996	Do not reject the null hypothesis.
FISI 2013	339	0.61	105	0.57	0.065	Do not reject the null hypothesis.
FISI 2014	186	0.89	93	0.94	0.999	Do not reject the null hypothesis.
FISI 2013L	**101**	**0.78**	**29**	**0.62**	**0.000**	**Reject the null hypothesis.**
FISI 2014L	60	0.92	27	0.93	0.657	Do not reject the null hypothesis.
MATE 1151	**320**	**0.51**	**32**	**0.25**	**0.000**	**Reject the null hypothesis.**
TEEL 1011	237	0.59	9	1.00	*	*
TEEL 1012	246	0.74	126	0.76	0.723	Do not reject the null hypothesis.
TEEL 1048	258	0.69	426	0.77	0.999	Do not reject the null hypothesis.
TEEL 2008	96	0.94	441	0.91	0.173	Do not reject the null hypothesis.
TEEL 2151	96	0.81	48	0.81	0.475	Do not reject the null hypothesis.
TEEL 1011L	78	0.76	1	1.00	*	*
TEEL 1012L	**76**	**0.93**	**41**	**0.83**	**0.008**	**Reject the null hypothesis.**
TEEL 1048L	**73**	**0.92**	**137**	**0.83**	**0.023**	**Reject the null hypothesis.**
TEEL 2008L	33	0.91	148	0.89	0.351	Do not reject the null hypothesis.
TEEL 2151L	32	0.81	15	0.87	0.833	Do not reject the null hypothesis.
TIEL1000	9	1.00	3	1.00	*	*
TIEL 2000	**15**	**1.00**	**9**	**0.67**	**0.003**	**Reject the null hypothesis.**
TIEL 2001	6	1.00	0	#DIV/0!	*	*
TIPE 2007	6	0.50	3	1.00	*	*
TIEL 2000L	3	1.00	1	1.00	*	*
TIEL 2001L	2	1.00	1	1.00	*	*
GENERAL	***3318***	***2254***	***0.68***	***17390***	***0.533***	***Do not reject the null hypothesis.***

*Analysis could not be performed because statistics conditions were not met.

A second analysis was to be conducted to compare project participants with other displaced workers who were contacted but did not participate in the project.

Nonetheless, no contact information on non-participating displaced workers from the same source as the participants (TAA-eligible list) was available, thus this analysis could not be performed.

Conclusions and implications

Conclusions

Priority 1

Improve physical infrastructure for Blended and Online Delivery Learning Technology by developing an Educational Opportunities Center (EOC) for the use of technology and interactive tools.

The CUSJ improved its infrastructure for blended and online delivery learning technology by creating the Educational Opportunities Center, upgrading 19 classrooms with smartboard technology, and by developing educational modules to deliver courses through a mixed-methods approach. Currently, the CUSJ is not authorized by the Educational Council of Puerto Rico (CEPR, its Spanish acronyms), institution that licenses all educational institutions and academic programs offering, to offer online academic programs nor deliver online courses (courses with a 100% online delivery method). Nonetheless, the improvements in infrastructure will allow the CUSJ in a near future develop and deliver online courses. This priority was successfully addressed.

Priority 2

Modify an associate degree program for online accelerated delivery to meet the Needs of TAACCCT with Career Pathways by developing blended and online delivery learning courses in the Educational Opportunities Center (EOC).

- *This priority included joining forces with a 4 years institution that will design years 3 and 4 of an accelerated online bachelor degree program and ease transfer to the proposed online bachelor program through an articulation agreement.*
- *The project will aggressively develop collaboration agreements with TAACCCT Industries to ensure employment for its graduates.*

The second priority addressed by the TAACCCT Round 2 Project was to modify an associate degree for online accelerated delivery. But, since the CUSJ is not authorized by the CEPR to offer fully online programs and courses, the modified

program (Electronics Technology Engineering), courses were modified to incorporate online educational modules through an educational platform (*Blackboard*).

The SoW proposed to modify seven courses (second and third semesters) from the Electronics Engineering Technology. Those courses were developed in an accelerated modality (are offered during 8 weeks periods, instead of the traditional semester). It should be highlighted that 20 additional courses were modified to include online educational modules through *Blackboard*, for a total 27 courses. Because of contractual disagreements, the CUSJ chose to discontinue services from *Blackboard* and in currently working with *CAMS* platform and *Moodle* to transfer contents and continue offering the online educational modules developed with TAACCCT Round 2 funds.

Other component of this priority relates to joining forces with a 4 years institution to design years 3 and 4 of a Bachelor's degree, to increase the amount of students who complete the associate degrees, and continue to a bachelor's degree. This was not achieved because the current academic offering of the PUPR includes bachelor's degrees in Engineering, which is related to the eligible academic programs from the TAACCCT Round 2 Project, but are not equivalent (Engineering Technology vs. Engineering). Course contents were reviewed by the PUPR to ensure proper alignment to the courses, thus achieving a higher credit transferability rate, but students still need to take more than 80 credits at PUPR. This means that the bachelor's degree may take 5 – 6 years to complete.

The third component of priority 2 encompasses the development of collaboration agreements with TAA Industries to ensure employment for its graduates, but no

information on this matter was provided by the CUSJ. In conversations, the Project staff exposed the challenge to achieved component, because of the current job market crisis and inability to get companies to agree to employ CUSJ graduates, when there are no open positions at their companies.

Priority 3

Provide online tutoring and academic services for project participants to improve retention and graduation rates progress and if any student outcomes to date have been achieved.

During project implementation, tutoring and academic services were provided, on site, by faculty members. Tutors would visit classrooms to introduce themselves and to inform students of services and schedules available. Academic services (like academic and professional counseling was provided by faculty members, when requested by students. As revealed in courses grades analysis, the tutoring services were successful in helping student with their academic success, since most students who took tutoring passed their courses.

The Project was successful in implementing must of the activities proposed in its SoW. Infrastructure was improved (both physical and technologically), educational materials and modules were developed (more courses than proposed in the SoW), an excellent enrollment rate was achieved, and educational services were provided.

On the other hand, due to time constrains, some of the expected outcomes could not be properly assessed (students completing the academic programs, enrolling in higher level educational programs, been employed within the field of their choosing, keeping their jobs, getting higher paying jobs, etc. Data on employment was not

collected during project implementation and student tracking was a challenge, due to low participation rate in surveys.

Even though the CUSJ made many efforts to attend to the student population needs, personal and professional circumstances prevent students from completing their programs. The financial crisis which currently affects Puerto Rico, and the increasing amount of industries closing operations in the island represent a great challenge for graduate employment.

Implications for future projects

The lessons learned from the TAACCCT Round 2 Project at the CUSJ will allow future DoL projects to better address the needs of displaced, unemployed or at risk of losing their jobs populations.

- The working force is made up of an extremely diverse population, in terms of educational level, age, interests, location and needs. TAACCCT projects aim to help workers eligible for training under the TAA for Workers program, as well as a broad range of other adults. It is important that DoL local offices join forces with the TAA office to help HEI's to identify and address the particular needs of this population (displaced or at risk of losing their jobs). For working fathers and mothers, it may not be a priority to complete a degree, when they are at risk of losing their jobs and need to maintain a family
- Even though community colleges developed projects to address different educational needs, the DoL, through is local offices and dependencies, needs to develop a research culture within industries, as to better assess the

strengths and weaknesses, and needs of the current workforce. This information should be available to HEI's to better adapt their academic offerings.

- Future projects must address the specific needs of the population it served. Access to higher education institutions represent many challenges to the working force, which encompasses household providers of different ages and abilities. Older adults who have been away from a formal educational setting for a long time may encounter difficulties adapting to new technologies.
- Needs assessment should be done by local DoL offices periodically (yearly or every two years) and data be made public in a timely manner. Constant communication much be enable between higher education institutions and DoL offices to allow for the appropriate feedback among efforts
- For TAA population, a two years degree may be too extensive to complete, so future projects could focus on short careers and professional certificates in high demand local fields.

Recommendations for project improvement and for future programs

Every educational project encounters challenges during its implementation. Some of these challenges are related to participant recruitment, unaccounted variables that affect decision making, and project management, among other. This project evaluation process has provided insight that allows to provide recommendations that may improve future projects and programs.

Participant recruitment

- Initially, participants were to be TAA eligible students, but access to this population was limited. In this matter, the local WIA office has a major role to fulfill. In order to improve the outreach to the TAA eligible population, and the displaced workers' population, the local Department of Labor (in this case, the Department of Labor and Human Resources of Puerto Rico) and local WIA offices must provide, in a timely manner, information that may allow TAACCCT grant recipients to contact eligible participants (while protecting confidential information, when appropriate).
- WIA offices and the local DoL agency should collaborate in program outreach, and explain eligible participants of programs benefits.
- The CUSJ and the TAA local offices must implement a more aggressive promotional campaigns of all funded programs, with special focus on the different job opportunities within the fields. While the Internet (social networks and institutional webpage) provides a great mean for communicating its academic programs offering population announcements, especially for the

younger population (students from 16 to 25 years old), it may not be as effective for older populations (26 and older). Other strategies to promote the funded programs could be radio and newspaper announcements.

- Women participation in Engineering related programs is very limited. More efforts must be may to increase the amount of women who enroll in Science and Technology academic programs at the CUSJ.

Project implementation

- Due to a delay in the approval of the Statement of Work, the Project implementation was delayed. This affected both programmatic activities and outcomes. In future similar scenarios, additional time should be given to the grant recipient (to compensate). This may be necessary to allow for proper project implementation and to allow sufficient time to achieve the expected results and to perform follow-up activities.
- As projects are implemented, different aspects from the original statement of work may need to be change. It is important to communicate those changes to project staff and to document the changes approved by the Project's DoL Monitoring Officer. All amendments should be documented and communicated in writing to project staff.
- Faculty members should have a more active role in project implementation. They serve as liaison between administration and students, and could help improve project outreach to the student community, by informing of activities and services available, communicating students' concerns to proper staff, etc.

They, also, should be more involved in the development and implementation of new educational technologies and modules, to ensure proper adoption by faculty members who shall collaborate by adapting their own educational practices.

Project management

- The DoL may provide grants recipients with a guide on how to document properly project activities. One of the biggest challenges for a project evaluation are related to the lack of documentation on efforts made by the Project staff. Many activities and work is put into proper project execution, but many times there are no documentation to provide evidence that may be "linkable" to project results.
- In order to improve project effectiveness, all CUSJ personnel and students should be aware activities and efforts made by the project. Monthly reports from project staff must be collected, as well as quarterly activities reports should be presented by Project Director and discussed with project and CUSJ staff. A periodical bulletin with activities, services and achievements could be distributed among CUSJ staff, faculty members and students.

Partners and collaboration agreements

- The CUSJ has many partners when it comes to practice workplaces, but need additional partners to provide job opportunities to graduated students.

- Many agreements are informal, thus it is recommended that meetings and agreements be documented and reviewed on a periodical basis.
- In order to address the second priority, the CUSJ mush identify other HEIs that offer bachelor's degrees in more compatible programs, to better address the articulation process and facilitate credit transferability, to reduce completion time.

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