PACIFIC
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Final Evaluation Report

Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant: Round 2

College of Southern Nevada

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Executive Summary

TAACCCT Program/Intervention Description and Activities

The Facilities Maintenance and Operations (FMO) Training Program at College of Southern Nevada (CSN) was funded through a $2.39 million, four-year Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant from the US Department of Labor (DOL). In 2009, the American Recovery and Reinvestment Act amended the Trade Act of 1974 to authorize the TAACCCT Grant Program.

The Facilities Maintenance and Operations (FMO) Training Program is four months in length and provides training through four program modules in the areas of safety, plumbing, electrical, and HVAC. By participating in these modules, students can earn a CSN Certificate of Completion as well as up to six industry-recognized certifications. The grant program supported students by offering them tutoring, career guidance such as résumé support, hands-on learning opportunities, connections to potential employers through facility tours, and the use of the Integrative Basic Education Skills Training (I-BEST) model to deliver curriculum, which is an evidence-based approach to providing students with instruction in reading, math, or English language along with training in professional and technical content. As a result of these interventions, the FMO Training Program intended to provide program participants with necessary skills and certifications to obtain employment in the region in the area of facilities maintenance and operations.

Evaluation Design Summary

In July 2013, CSN partnered with Pacific Research and Evaluation (PRE) to design and conduct the third-party evaluation of the FMO Training Program. The goals of the evaluation were to assess how the program addressed formative evaluation questions posed by DOL and to examine academic and employment outcomes for program participants. The research plan encompassed an implementation study and an outcomes analysis. For the implementation study, evaluators utilized the DOL formative evaluation questions as research questions. The overarching topics of these questions included: 1) program development; 2) modules and certifications; 3) eligibility requirements and recruitment; 4) student support services; 5) industry connections; and 6) strengths and constraints. More specifically, the DOL formative evaluation questions include:

- Analyze the steps taken by the institution to create and run the training program.
- Assess the operational strengths and weaknesses of the project after implementation.
- How was curriculum selected, used, or created?
- How programs and program design were improved or expanded using grant funds?
- What delivery methods were offered?
- What was the program administrative structure?
- What support services and other services were offered?
- Did grantees conduct an in-depth assessment of participant's abilities, skill, and interests to select participants into grant program?
- What assessment tools and process were used?
- Who conducted the assessment?
- How the assessment results were used?

- Were assessment results useful in determining the appropriate program and course of sequence for participants?
- Was career guidance provided and if so, through what methods?
    - Program Design
    - Curriculum Development
    - Recruitment
    - Training
    - Placement
    - Program Management
    - Leveraging of Resources
    - Commitment to Program Sustainability
- What factors contributed to partners' involvement or lack of involvement in the program?
- Which contributions from partners were most critical to the success of the grant program?
- Which contributions from partners had less of an impact?

In addition, the implementation study addressed the topic of program sustainability. Evaluators assessed these topics by analyzing findings collected through project team focus groups, student surveys, student focus groups, and staff surveys. Evaluators also found evidence related to institutional capacity by evaluating data from these sources.

For the outcomes analysis, evaluators reviewed academic and employment data for FMO Training Program students. Specifically, the outcomes evaluated included: 1) program completion; 2) retained in program of study; 3) credential earned; 4) enrolled in further education; 5) wage increase; and 6) entered employment. The initial plan was for evaluators to conduct an impact study with a historical comparison cohort; however, evaluators determined this was not feasible, because data were not available for the potential comparison group.

Implementation Findings

CSN utilized staff experience in the industry to create and run the training program. Staff also collaborated with industry partners to determine their needs, and in doing so, decided to implement a pre-existing curriculum developed by the National Center for Construction Education and Research (NCCER). In addition to gathering feedback from industry partners to determine curriculum design, partners in the community also provided students with facility tours, training opportunities through apprenticeships, recruitment support, and information about job openings.

The grant program was mostly implemented with fidelity to the original design. There were some changes that were made to program implementation during the grant; however, these changes improved the overall program and better supported participants in the program. Specifically, rather than offering classes once a day, staff saw a need to offer both day and evening classes and initiated the change as a result. Additionally, an industry partner suggested that the program should incorporate an Environmental Protection Agency (EPA) 608 Certification, so staff added curriculum and testing opportunities around that industry-recognized certificate.

Through the implementation evaluation, evaluators learned that there were several strengths of the program. These strengths included hands-on learning opportunities, helpful and knowledgeable

instructors, and the ability to make the aforementioned improvements to the program. Additionally, students and staff cited that a major strength of the program was that it helped students obtain employment by teaching necessary skills and providing career guidance. Opportunities for program improvement were revealed as well. While some students noted that hands-on learning opportunities were a strength, others suggested there was a need for more of these opportunities. Additionally, students suggested a need to improve recruitment efforts so more potential students are aware of the program.

Participant Outcomes

Through an assessment of key TAACCCT outcomes, evaluators learned there were some positive outcomes for FMO Training Program students. In particular, the completion rate for program students was much higher than it was for students in a comparable program. The program also provides students with opportunities to earn several industry-recognized credentials. Furthermore, an analysis of employment outcomes revealed that 26.7% of incumbent workers received a wage increase and 52.5% of non-incumbent workers entered employment following program completion.

Conclusion

Based on the evaluation, PRE offered some key insights:

- The program benefited from CSN staff's willingness to make updates to the program based on feedback from others. These updates included adding a second class per day and incorporating the EPA 608 certification into the program.
- Students recommended improved recruitment efforts, so more potential students are aware of the program. This suggestion should be taken into consideration when implementing the sustained FMO Training Program, so more students can be impacted by the program.
- Several students and staff members cited the importance of incorporating hands-on learning opportunities. Some students suggested that more of these opportunities were needed. The sustained program should incorporate such opportunities when possible.

Introduction

The Facilities Maintenance and Operations (FMO) Training Program at the College of Southern Nevada (CSN) was funded through a $2.39 million, four-year Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant from the US Department of Labor (DOL). In 2009, the American Recovery and Reinvestment Act amended the Trade Act of 1974 to authorize the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant Program.

TAACCCT provides community colleges and other eligible institutions of higher education with funds to expand and improve their ability to deliver education and career training programs that can be completed in two years or less, are suited for workers who are eligible for training under the TAA for Workers program, and prepare program participants for employment in high-wage, high-skill occupations. Through these multi-year grants, DOL is helping ensure that our nation's institutions of higher education are helping adults succeed in acquiring the skills, degrees, and credentials needed for high-wage, high-skill employment while also meeting the needs of employers for skilled workers. DOL is implementing the TAACCCT program in partnership with the Department of Education. The FMO Training Program grant was awarded in October 2012 and, with a no cost extension, ran services as part of the grant through July 2016. The program will be sustained at CSN following the conclusion of grant funding.

CSN was awarded a Round 2 TAACCCT grant in a period when Nevada's unemployment rate was the highest in the nation. At that time, Las Vegas job losses were most pronounced in the construction industry. Workers in this area tended to develop specialized skills related to construction such as drywall installation. Rather than training students to concentrate in a specific area of construction, the FMO Training Program was created to provide students with training in a variety of areas related to facility maintenance such as electrical, plumbing, HVAC, and pool operations. The Las Vegas region has a need for employees trained in a variety of areas related to facilities maintenance and operations given that the area has a large number of facilities that support hospitality, medical industries, and government agencies. In particular, Las Vegas has a thriving hospitality sector with many casinos, hostels and convention spaces; these facilities have a need for employees in maintenance and repair occupations. The newly developed program brought not only training in the facilities maintenance and operations area, but also curricular and program innovations and industry engagement.

In July 2013, CSN partnered with Pacific Research & Evaluation (PRE) to design and conduct the third-party evaluation of the FMO Training Program. PRE designed and executed a comprehensive plan for the implementation and outcomes evaluation components required by DOL and collected additional data to inform continuous program improvements throughout the grant. The implemented evaluation plan is summarized below.

Research Plan

The evaluation methodology included an implementation evaluation to assess formative questions and an analysis of student academic and employment data in terms of key outcomes.

Implementation Evaluation

The implementation evaluation included a two-step evaluation with a focus on the initial assessment of the program plan and curriculum followed by an ongoing assessment of how the program was implemented. The initial assessment was focused on collecting background data related to the development of the CSN TAACCCT program. Specifically, evaluators collected qualitative data to learn more about how the program was created as well as how curriculum was developed and selected for use in the FMO Training Program. In order to gather this initial information, evaluators conducted a focus group with the CSN project team. Additionally, evaluators reviewed project summary documents including CSN's grant request to gather background information used to assist in the development of the focus group protocol.

The ongoing formative assessment focused on the operational strengths and weaknesses of the program upon implementation. Formative data were collected from students, staff, and project team members through surveys and focus groups; these data addressed staffing, delivery methods (i.e. assessment, recruitment, and career guidance), participation, and partner contributions. Table 1 summarizes the methods used for addressing each of the formative evaluation questions posed by DOL.

Table 1. Evaluation Methods for DOL Evaluation Questions

Evaluation Questions	Evaluation Method	Timeline
Analyze the steps taken by the institution to create and run the training program.	Project Team Focus Group	Year 2
Assess the operational strengths and weaknesses of the project after implementation.	Project Team Focus Group Student Survey Staff Survey	Years 2 & 4 Years 3 & 4 Years 2 & 3
How was the curriculum selected, used, or created?	Project Team Focus Group	Year 2
How programs and program design were improved or expanded using grant funds?	Project Team Focus Group	Year 2
What delivery methods were offered?	Student Survey Student Focus Group Staff Survey	Years 3 & 4 Years 3 & 4 Years 2 & 3
What was the program administrative structure?	Project Team Focus Group	Year 2
What support services and other services were offered?	Project Team Focus Group Student Survey Student Focus Group Staff Survey	Year 4 Years 3 & 4 Years 3 & 4 Years 2 & 3
Did grantees conduct an in-depth assessment of participant's abilities, skill, and interests to select participants into grant program?	Student Survey Student Focus Group Staff Survey	Years 3 & 4 Years 3 & 4 Years 2 & 3
What assessment tools and process were used?	Student Survey Student Focus Group Stakeholder Survey	Years 3 & 4 Years 3 & 4 Years 2 & 3
Who conducted the assessment?	Staff Survey	Years 2 & 3
How the assessment results were used?	Student Survey Student Focus Group Stakeholder Survey	Years 3 & 4 Years 3 & 4 Years 2 & 3
Were assessment results useful in determining the appropriate program and course of sequence for participants?	Staff Survey	Years 2 & 3
Was career guidance provided and if so, through what methods?	Project Team Focus Group Student Survey Student Focus Group	Years 2 & 4 Years 3 & 4 Years 3 & 4

Evaluation Questions	Evaluation Method	Timeline
	Staff Survey	Years 2 & 3
What contributions did each of the partners make in terms of: • Program Design • Curriculum Development • Recruitment • Training • Placement • Program Management • Leveraging of Resources • Commitment to program sustainability	Staff Survey Project Team Focus Group	Year 3 Year 4
What factors contributed to partners' involvement or lack of involvement in the program?	Project Team Focus Group	Year 4
Which contributions from partners were most critical to the success of the grant program?	Staff Survey	Year 3
Which contributions from partners had less of an impact?	Project Team Focus Group	Year 4

Data Collection Tools

Table 2 further summarizes the methods used for collecting data to address the formative evaluation questions and provide continuous program improvement data over the course of the grant. Each of these methods is described in more detail below.

Table 2. Data Collection Methods

Activity	Year 1 (2012-13)	Year 2 (2013-14)	Year 3 (2014-15)	Year 4 (2015-16)
Project Team Focus Group	✓			✓
Student Survey		✓	✓	✓
Student Focus Group			✓	✓
Staff Survey		✓	✓	

Project Team Focus Groups

Evaluators conducted a project team focus group in Years 2 and 4 of the grant. Five members of the project team participated in the Year 2 focus group at CSN on October 2, 2013. Participants included the TAACCCT Grant Project Coordinator, Student Adviser, Executive Director of Apprenticeship Studies Division, Manager of Workforce & Economic Development, and Director of Academic Affairs. The following topics were covered during the Year 1 focus group: 1) Steps taken by the institution to create and run the training program; 2) Administrative structure of the program; 3) Selection of program curriculum; 4) Selection of students for the program; 5) Expectations of students in the program; 6) Strengths of the program; and 7) Program constraints.

The Year 4 project team focus group was conducted at CSN on January 28, 2016 and included four participants. Whereas the Year 1 focus group comprised of participants who had a larger role in obtaining the grant and designing the program, the Year 4 participants were more involved in program implementation. Specifically, Year 4 participants included the TAACCCT Grant Project Coordinator and Student Adviser—both of which were roles included in the Year 1 focus group—as well as the Program Admin and Integrative Basic Education Skills Training (I-BEST) Instructor. Participants explored the

following topics during the Year 4 focus group: 1) Success of program implementation; 2) Barriers to successful implementation of the program; 3) Meeting expectations for students in the program; 4) Meeting employment demands in the region; 5) Contributions from partnering organizations; 6) Factors contributing to partners' involvement or lack of involvement in the program; and 7) Plans for program sustainability.

Student Surveys

Evaluators administered a survey to FMO Training Program students at four points during Years 2 through 4 of the grant to gather feedback from students participating in the program. The administration of the survey was staggered to gather feedback from students participating in the program at different times during the grant. The table below demonstrates when surveys were administered, how surveys were administered, and the response rate for surveys.

Table 3. Student Survey Administration

Year	Survey Format	Response Rate
Year 2 (Summer 2014)	Online	n=5/24 (20.8%)
Year 3 (Fall 2014)	Paper-Pencil	n=23/23 (100%)
Year 3 (Summer 2015)	Online	n=11/23 (47.8%)
Year 4 (Summer 2016)	Online	n=9/33 (27.3%)

Table 3 shows that the response rate in June 2014 was 0%; evaluators learned that the online format of the survey was not ideal for FMO Training Program students, because many of them did not check their emails regularly. As a result, evaluators created a paper-pencil format of the survey and administered it in November 2014; this round of surveys was not included on the initial evaluation timeline, but evaluators added it due to the lack of responses gathered during the first survey. In the second attempt at administering the student survey, there was a 100% response rate; however, students who took the survey only completed the first page of the four-page survey. Therefore, when evaluators administered the survey in August 2015 and July 2016, they went back to the online format, which are quicker to complete as compared to a paper-pencil surveys. In doing so, evaluators worked with project team members to encourage instructors to mention the survey to students in class, so that the response rates would be higher than in Year 2.

The purpose of the student survey was threefold: 1) Answer formative evaluation questions posed by DOL to all TAACCCT grantees; 2) Collect data around the summative outcomes of interest to DOL; and 3) Gather additional information of interest to CSN project team members to inform continuous program improvement.

Because only a small number of surveys were completed in their entirety prior to the summer 2015 survey administration, only results from the last two surveys will be described in this report. Thus, when referring to Year 3 student survey results elsewhere in this report that is in reference to the survey administered in summer 2015.

Evaluators also administered a follow-up student survey in July 2016 to program completers. The purpose of this final survey was to gather information about academic outcomes that CSN project team members were not able to provide to evaluators. Specifically, the survey asked participants to share whether they enrolled in another program at CSN and whether they enrolled in an academic program elsewhere. This

follow-up student survey was completed by 13 of the 66 students it was administered to for a 19.7% response rate.

Student Focus Group

Students participated in focus groups that were conducted during Years 3 and 4 of the grant. The first student focus group was conducted at CSN on December 16, 2014. Students participating in Year 3 were part of Group 3 of the program with about half having participated in the CORE, plumbing, and electrical modules, and the other half having completed only the electrical class at that time. The Year 2 evaluation plan included a student focus group, but it was postponed until the beginning of Year 3 to better coincide with when a group of students was nearing the end of their modules. The following topics were explored in the Year 3 student focus group: 1) Assessments for program entry; 2) Advising services; 3) Program awareness; 4) Education plans; 5) I-Best model; 6) Barriers to program completion; 7) Suggestions for improvement; 8) Employability; 9) Plans for obtaining employment after program completion.

On January 28, 2016, evaluators conducted the Year 4 focus groups at CSN. Many of the topics discussed in the second focus group overlapped with those covered in Year 3. Specifically, participants responded to prompts related to the following topics: 1) Course participation; 2) Assessments for program entry; 3) Advising services; 4) Career guidance; 5) Career plans; 6) Opportunities to work with local organizations; 7) Education plans; 8) Barriers to program completion; 9) Suggestions for improvement.

Staff Survey

In an effort to gather staff feedback about the FMO Training Program, evaluators administered an online survey to staff in Years 2 and 3. The Year 2 staff survey was distributed to the four key program instructors in June 2014, while the Year 3 survey was disseminated in June 2015 to 11 staff members including instructors, advisers, and tutors. Both surveys had a 100% response rate and assessed program quality, contributions of industry partners, and perceptions of student experiences. A staff survey was initially planned for Year 4 of the grant; however, evaluators conducted the second project team focus group instead, which was not initially part of the evaluation plan.

Outcomes Evaluation

PRE evaluators conducted an outcomes evaluation by assessing academic and employment data for FMO Training Program participants. The data evaluators measured included outcomes of interest to DOL:

- Program Completion
- Retained in Program of Study
- Credential Earned
- Enrolled in Further Education
- Wage Increase
- Entered Employment

DOL was also interested in learning whether participants were retained in employment; however, these data were not available. In addition to assessing participant data as it pertains to the outcomes listed above, evaluators will demonstrate how these outcomes compare to a similar program at CSN. Specifically, evaluators will show program similarities and differences for the program completion, retained in program of study, and continued enrollment outcomes.

Program Students

Participant Characteristics

A total of 126 students participated in the FMO Training Program. Data gathered by CSN staff upon program entry showed that a large majority of participating students were male (94.4%) as compared to female (5.6%).Forty-five percent (45.2%) of students were Hispanic/Latino, 32.5% were Black or African American, 16.7% were White, and 5.6% of students were American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, or more than one race. CSN also collected information about participants' highest level of education obtained upon entering the FMO Training Program. Table 4 demonstrates that about a quarter of students (23.0%) had not earned a GED, high school diploma, or anything higher. Furthermore, a majority of students (53.9%) either had a GED or high school diploma while 23.1% of students had obtained education higher than a GED or high school diploma.

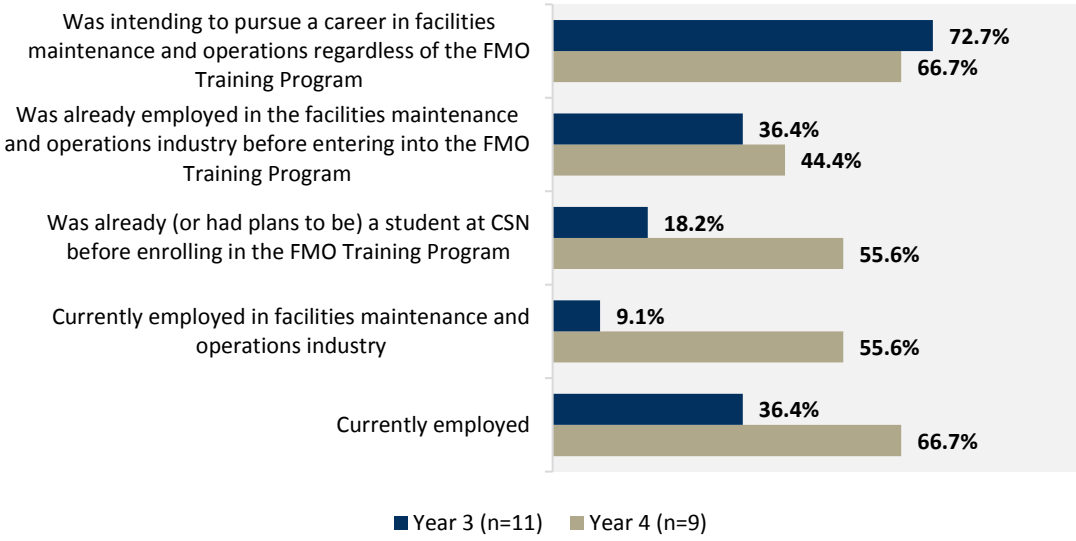
Table 4. Highest Level of Education Obtained by Students Entering FMO Training Program (n=126)

Education Levels	**% (n) Obtained**
None of the education levels listed below	23.0% (n=29)
GED	22.2% (n=28)
High School Diploma	31.7% (n=40)
Technical or Vocational School	17.5% (n=22)
Associate's Degree	2.4% (n=3)
Bachelor's Degree	2.4% (n=3)
Master's Degree	0.8% (n=1)

Student Employment Characteristics

The annual student survey asked students a series of questions about their employment characteristics as shown in Figure 1 below. The characteristics of students taking the survey in Year 3 differed from those taking the survey in Year 4 in that a third fewer were incumbent workers in Year 3. Similarly, of those who were employed, 55.6% were employed in the facilities maintenance and operations industry in Year 4 as compared to 9.1% in Year 3.

Figure 1. FMO Training Program Student Employment Characteristics
(%Yes)



CSN also collected self-reported student employment data upon enrollment in the FMO Training Program. These self-reported data indicated that 41.3% (n=43) of participants were incumbent workers.

FMO Training Program Development

Three primary components of the FMO Training Program at CSN will be reviewed below, including: 1) The development or modification of the FMO Training Program, 2) The utilization of student support services, and 3) The leveraging of relationships with local industry partners.

The FMO Training Program is comprised of coursework in the areas of safety in the workplace, plumbing, electrical, and HVAC. Through these courses, students can earn up to six-industry recognized certificates as well as a certificate through CSN. The support services that were available through the grant program included tutoring and career guidance with some of these services provided through the utilization of the I-BEST model. The FMO Training Program project team engaged with industry partners in the region to select a curriculum that meets employer needs and to provide input on certifications. The project team fostered these relationships throughout the grant to provide students with tours of their facilities, training opportunities, and information about job openings.

Furthermore, evaluators also assessed eligibility requirements and recruitment, program strengths and constraints, and sustainability. These findings are also presented below.

Modules and Program Development

The sections below detail the steps taken by CSN to create and run the FMO Training Program; the administrative structure of the program; how curriculum was selected, used, or created; how programs were designed or improved using grant funds; and what delivery methods were offered.

Analyze the steps taken by the institution to create and run the training program

During the Year 2 project team focus group, evaluators learned that CSN staff initially took steps to create the FMO Training Program when applying for Round 1 TAACCCT funding. CSN received funding during the first round of the grant; however, they did not receive enough funds to include the FMO Training Program. CSN did not apply for a Round 2 grant, but was instead awarded funding as a state designated grantee. Once awarded the funds, CSN then had to create a plan for implementing the Round 2. In doing so, they included some aspects from the Round 1 request such as the incorporation of the I-Best model, but also used it as an opportunity to make some modifications to the original proposal. Specifically, the focus of the program changed from construction to facility maintenance and the Executive Director of Apprenticeship Studies Division started participating in discussions regarding program creation, which helped the team further define the project. Institution staff made the decision to create a facility maintenance program based on need in the community, its likelihood of being sustainable, and buy-in from industry partners: "We based the program on long-term sustainability and also the need in the community. We also based it on commitment from partners."

What was the program administrative structure?

In terms of the administrative structure of the grant, the FMO Training Program was headed by the Executive Director of Apprenticeship Studies Division who had many years of experience overseeing trade education programs. The grant project coordinator reported to the executive director for guidance in overseeing the day-to-day implementation of the grant. This grant project coordinator had experience with TAACCCT grants as a result of working on Round 1 of the grant. The structure of the grant program also included strategic partnerships with employers and third-party funding agencies; these efforts were led by a student adviser who also focused on helping students find employment. Several other staff members were responsible for supporting grant implementation efforts including managers in the areas of processes and procedures, finances, and data. Staff members discussed this structure during the Year 2 project team focus group.

How was curriculum, selected, used, or created?

Project team members selected pre-existing curriculum for the FMO Training Program. The selected curriculum was chosen based on input from industry partners and the need for the curriculum to lead to a national credential. During the Year 2 project team focus group, a staff member explained that a facilities management group and representatives from hotels in the area provided "input regarding what they need" from employees. Staff added that curriculum leading to a national credential was ideal, because it is "recognized as an industry standard," gives students "real world" experiences, and is regularly "being updated" by experts in the industry. As a result of these considerations, staff selected curriculum from the National Center for Construction Education and Research (NCCER), which is a non-profit education organization that develops standardized construction and maintenance curriculum.

Additionally, when determining which curriculum to select, project team members also took into consideration the need for curriculum to help students overcome barriers. The curriculum included the use of WorkKeys assessments, which identified areas in which students will need additional supports such as tutoring. Furthermore, the curriculum incorporated the I-BEST model as a means to provide students with necessary basic skills.

How programs and program design were improved or expanded using grant funds

The FMO Training Program was a new program offered at CSN as a result of Round 2 TAACCCT funding. Therefore, a pre-existing program was not improved or expanded under this grant.

What delivery methods were offered?

As was previously mentioned, the FMO Training Program utilized the I-BEST model for delivering curriculum. The I-BEST model uses a team-teaching approach in which one teacher provides professional and technical content while the other teacher provides basic skills in reading, math, or the English language:

> "Part of our curriculum is the marriage of that curriculum with the I-BEST model. We know that the students need those basic skills, so they can be successful. They may need extra help in reading and writing. That's what makes our curriculum different. People in the industry know that those are barriers on the job site."
>
> *–FMO Training Program Staff Member (Year 1)*

When evaluators visited CSN to conduct student focus groups, they were given a tour of the classrooms and shown several pieces of equipment used to provide students with hands-on instruction. This delivery method was further confirmed by students and staff who indicated on the surveys and in focus groups that the hands-on approach was a strength of the program. Staff members taking the survey also commented that instructors delivering the curriculum have field experience in the areas they are teaching, which "gives the students real world situations to better understand what is talked about in the book." In fact, a staff survey participant noted that the program strengths were "the experience of the instructors and the hands-on approach" to learning.

TAACCCT Grant Components

Modules and Certifications

The FMO Training Program is a four-month long program that consists of four modules that are each four-weeks in length. These modules include CORE, plumbing, electrical, and HVAC. The CORE module focuses on safety in the workplace, while the other three modules provide hands-on training so students can learn how to diagnose, assess and repair electrical, plumbing, heating, and air conditioning. Students who complete each of the four modules earn a CSN Certificate of Completion. Additionally, participation in the program can lead to up to six industry-recognized certificates that can aid program participants in obtaining employment. These industry-recognized certificates are described below.

National Career Readiness Certificate (NCRC)

Students can earn an NCRC by obtaining satisfactory scores on all three sections of the WorkKeys assessment. The three sections of the WorkKeys assessment include reading for information, applied mathematics, and locating information. The NCRC is a nationally-recognized certificate proving a test-taker's abilities in the areas of reading, math, and locating information, and as a result, allows those who pass to stand out to potential employers. The NCRC is the only certificate associated with the FMO Training Program that is not linked to any of the program modules.

National Center for Construction Education and Research (NCCER) Certificate

Students earn an NCCER certificate by completing the plumbing, electrical, and HVAC modules. As discussed earlier in the report, the NCCER develops standardized construction and maintenance curriculum, which includes curriculum for plumbing, electrical, and HVAC.

Certified Pool/Spa Operator (CPO) Certificate

Students participate in a two-day course about pool and spa maintenance as part of the plumbing module. Following the conclusion of the two-day course, students take an assessment to obtain the CPO Certificate. Students can fail the CPO Certificate assessment and still complete the plumbing module.

OSHA 10 Card

The Occupational Safety and Health Administration (OSHA) is part of the DOL and offers a 10-hour class that trains construction workers in the recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces in the construction industry. The OSHA 10 class is provided as part of the CORE module and students earn an OSHA 10 Card by participating in the class.

Heartsaver CPR/First Aid Card

Training for the Heartsaver CPR/First Aid certification was also provided through the CORE module. This course teaches FMO Training Program participants how to administer CPR and utilize an Automated External Defibrillator (AED) as well as how to help an individual who is choking. Participants of this training can earn a card demonstrating their participation in the course.

Environmental Protection Agency (EPA) 608 Certification

The EPA regulations under Section 608 of the Clean Air Act define a technician as an individual who performs the following activities: attaching and detaching hoses and gauges to and from an appliance to measure pressure within the appliance; adding refrigerant to or removing refrigerant from an appliance; and any other activity that violates the integrity of motor vehicle air conditioner (MVAC)-like appliance or small appliance. Thus, the EPA has developed four types of certifications for technicians as shown in Table 5.

Table 5. EPA 608 Certifications

Technician Activity	Certification Type
For servicing small appliances	Type I
For servicing of disposing of high- of very high-pressure appliances, except small appliances and MVACS	Type II
For servicing or disposing of low-pressure appliances	Type III
For servicing all types of equipment	Universal

The FMO Training Program incorporates EPA 608 coursework into the HVAC and electrical modules and then students take the EPA assessment, which has four sections: Core, Type I, Type II, and Type III. Students can obtain different levels of certification by passing the Core section as well as at least one of the certification types. For example, a student who passed the Core section and Type II would have a Type II certification, while students who passed Core, Type I, and Type III would have a Type I and Type III certification. Students who pass all of the sections including Core receiv a Universal certification. The EPA 608 coursework and assessment was not offered as part of the FMO Training Program to the first two groups of students who participated in the program.

Eligibility Requirements and Recruitment

Did grantees conduct an in-depth assessment of participant's abilities, skill, and interests to select participants into grant program? What assessment tools and process were used? Who conducted the assessment? How were the assessment results used? Were assessment results useful in determining the appropriate program and course of sequence for participants?

An online flier about the FMO Training Program indicated that students must be at least 18-years-old to be admitted into the program; no other requirements were in place. In the early stages of the program, staff members mentioned in the Year 2 project team focus group that they planned to use the GAIN assessment to determine whether students are at a level that would allow them to understand the course content. Those who did not pass the assessment would not gain entry into the FMO Training Program but would instead be directed to a GED class and then be allowed to retake the GAIN assessment the following term; however, the program did not end up using the GAIN assessment. Instead, the WorkKeys assessment was the only test administered to students prior to program entry; this assessment was not used to determine student eligibility but rather to provide students with the opportunity to earn an NCRC by obtaining satisfactory scores on three sections and to show students what to expect out of the program. Specifically, a student focus group participant explained that the WorkKeys assessment was useful when applying for jobs, because the NCRC allowed them to show "employers our skills."

Students also reported how they were recruited to participate in the FMO Training Program. Students indicated in focus groups and on surveys that they learned about the FMO Training Program through various sources such as The Urban League, Nevada Job Connect, friends and relatives, CSN staff, the CSN website, internet research, another CSN class, and by walking into CSN. Some of these responses were in alignment with comments made by staff during the Year 2 project team focus group in that staff noted that they planned to connect with local agencies who would provide information about the program to potential students.

The initial plan of the FMO Training Program was for students to start the program by taking the CORE module; under this model any potential students interested in participating in the program could enroll when the CORE module was offered. Instead, CSN changed their enrollment procedure to allow students to begin the program at the start of any of the four modules. This update allowed for more opportunities for students to participate and complete the program faster by eliminating the need to wait for a specific module to commence. With these findings in mind, evaluators learned that the FMO Training Program removed obstacles that could prevent students from participating in the program.

Student Support Services

In addition to the instructional developments made as part of the FMO Training Program, a significant component of the TAACCCT grants are the student support services provided to advise students both academically and in their careers. These support services offered through the FMO Training Program are detailed below and reveal that they positively impacted students.

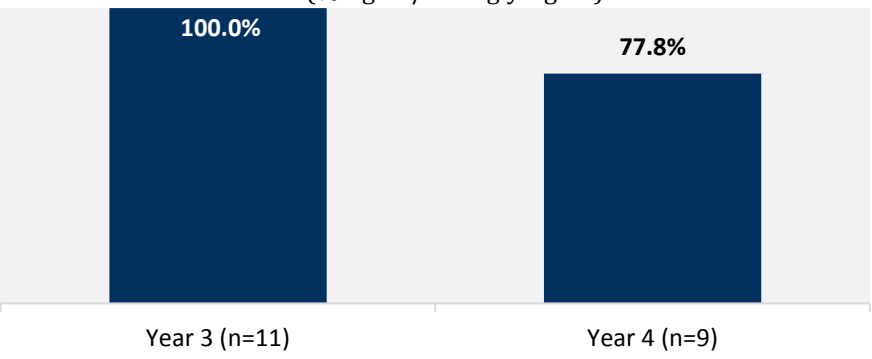
What support services and other services were offered?

The aforementioned I-BEST model was both an instructional aid as well as a means to provide support services to students. A student participating in the Year 3 focus group described the I-BEST instructor as "helpful" and added that the I-BEST instructor brought in speakers, lined up fieldtrips, and set up the CPO training. Another student added that they received information on study habits through the program. Furthermore, instructors were available to provide tutoring support before and after class as evidenced by the student focus group participant who stated that instructors "always tell us they are here 30 minutes before and after class to help with coursework." Another student added that if you do not understand the curriculum, instructors will "explain it to you one-one-one outside of class time." Program participants also indicated on the student survey that the program provided advising resources that otherwise would not have been available to them (see figure 2).

> "If we're struggling to pass a test or if we don't pass a test the first time, staff are always there to help us out."
>
> *-FMO Training Program Student (Year 4)*

Figure 2. The FMO Training Program provided advising resources that otherwise would not have been available to me

(% Agree/Strongly Agree)



Similarly, 100% of staff taking the survey in Year 2 (n=4) and Year 3 (n=11) indicated the FMO Training Program provides advising resources that otherwise would not have been available to students.

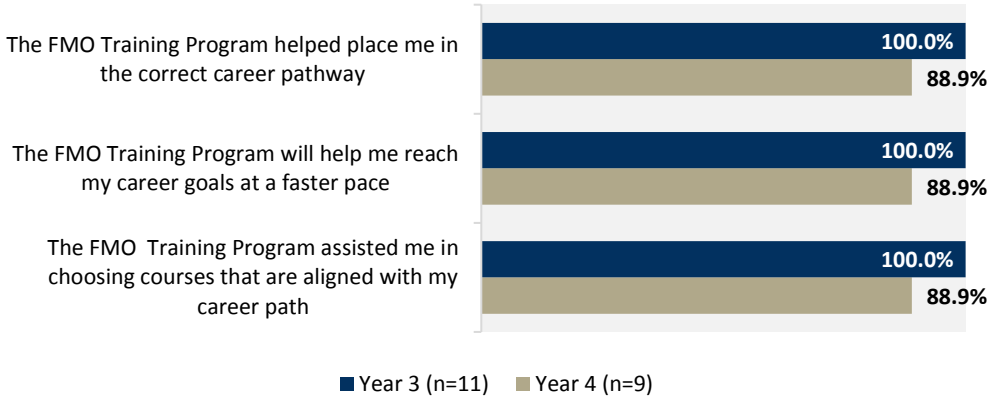
Was career guidance provided and if so, through what methods?

> "A lot of times these students have never created résumés. They've never created a document like that…We bought them thumb drives and taught them that their résumés are living document that can change and be updated. We will always support them and help do whatever needs to be done to add that new experiences on there."
>
> *-FMO Training Program Staff (Year 4)*

In addition to providing academic support to students, the FMO Training Program also offered career guidance. This career guidance included résumé support, tours of potential employers' facilities, union tours, interview guidance, and soft skills information including how to dress for interviews. Additionally, CSN staff told students when there were job openings in the industry and also shared with them how to find job openings. Students reported positive experiences with career guidance they received through the FMO Training Program. One student commented on the student survey that staff supporting students with career guidance were "very knowledgeable, helpful, and patient."

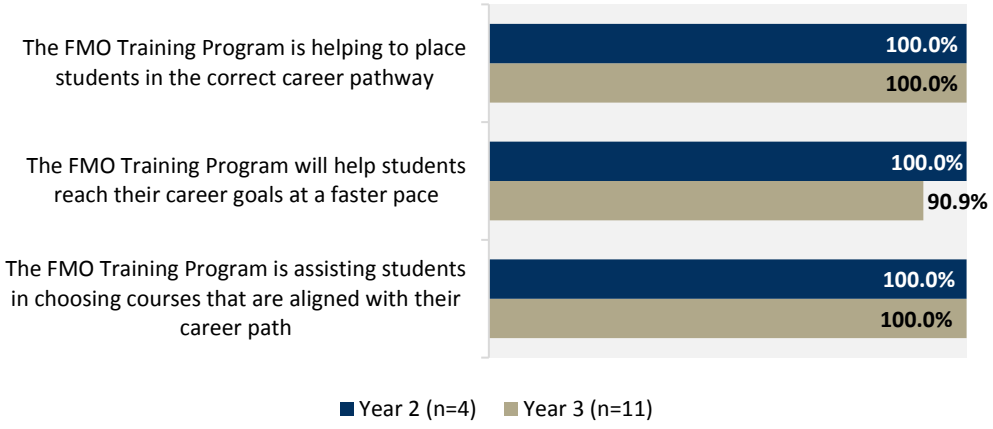
The figure below shows the impact of the career guidance provided to students through the program. Students in the Years 3 and 4 student survey credited the FMO Training Program with placing them in the correct career pathway, helping them reach their career goals at a faster pace, and choosing courses aligned with their career path (see Figure 3).

Figure 3. Student Perceptions of Career Guidance
(% Agree/Strongly Agree)



Staff also reflected on the career guidance that the FMO Training Program provided students. Similar to students, Figure 4 shows that nearly all staff credited the FMO Training Program with placing students in the correct career pathway, helping students reach their career goals at a faster pace, and choosing courses aligned with students' career path. One staff member noted during the Year 4 project team focus group that they had seen positive results from the career guidance they were providing: "One of the students I was working with on a résumé was having a hard time finding work. Not too long after I changed his résumé to include this program, he got a job right away. The program makes a big difference."

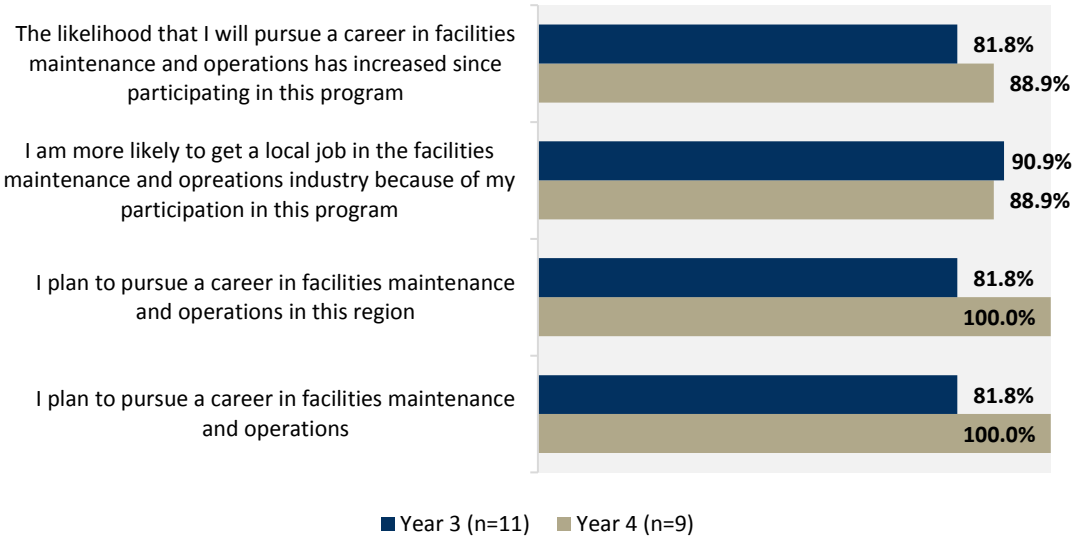
Figure 4. Staff Perceptions of Career Guidance
(% Agree/Strongly Agree)



Career Preparation

Figure 5 provides a snapshot of students' perceptions of the role the FMO Training Program played in preparing them for careers. Both Year 3 and Year 4 student survey results suggested that students credit the program with increasing the likelihood of pursuing a career in facilities maintenance and operations, improving their chances of obtaining a job in the field, and planning to pursue a career in the industry in the region. One student explained that the program "was a very good start to look into what kind of career you want to build." These responses suggest that the TAACCCT program is achieving the goal of students pursuing careers that fill a need in the region.

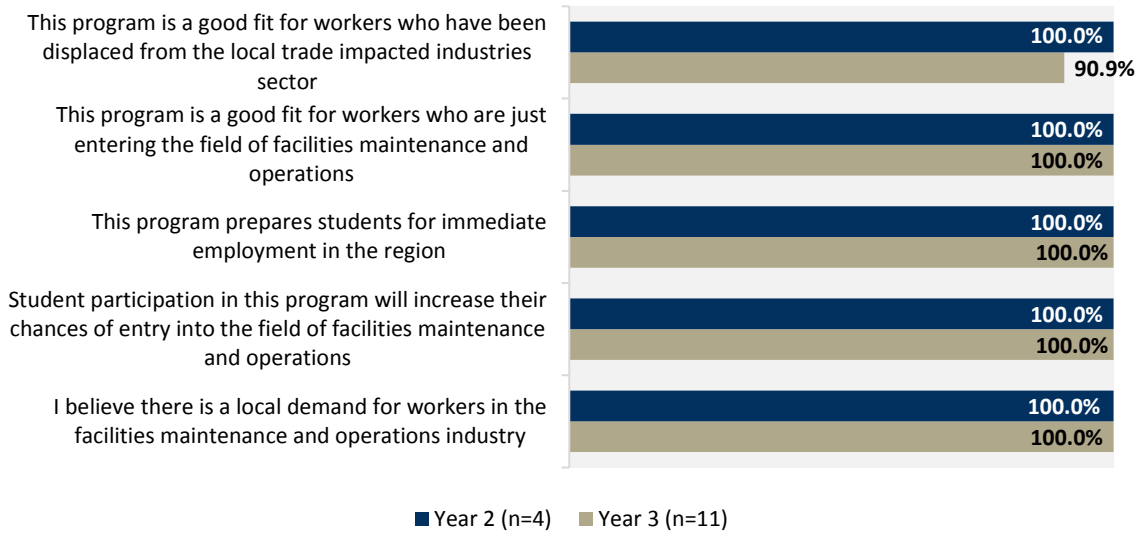
Figure 5. Student Perceptions on Career Preparation
(% Agree/Strongly Agree)



Staff surveyed in Years 2 and 3 of the grant responded to a series of questions about how the FMO Training Program is meeting local demand and preparing students for immediate employment in the region. As shown in Figure 6, nearly all staff believe there is local demand for facilities maintenance and

operations workers, that the program was increasing students' chance of entry in the field of facilities maintenance, and that the program prepared them for immediate employment in the field. One staff member elaborated by explaining that "the Facilities Maintenance and Operations Training Program assists students in gaining the skills and expertise to explore new career pathways and find employment in those new careers."

Figure 6. Staff Perceptions of Career Preparation
(% Agree/Strongly Agree)



Industry Connections

What contributions did each of the partners make?

As mentioned previously, CSN engaged industry partners early in the grant process to get input regarding curriculum development. Feedback collected during the Year 3 staff survey and the Year 4 project team focus group further indicated that CSN continued to collaborate with industry partners in various ways throughout the grant. Table 6 summarizes ways in which staff indicated partners were involved with the FMO Training Program as it pertains to types of contributions of interest to DOL. While staff did not mention that partners were involved with program management, they did report partner involvement in seven other key areas as shown in Table 6.

Table 6. Type of Partner Involvement

Type of Contribution	Partner Involvement	Specifics of Involvement
Program Design	✓	• A partner informed CSN about the EPA 608 certificate, which was then added to the program.
Curriculum Development	✓	• Partners provided input regarding what they needed students to learn, which CSN staff took into consideration when selecting the NCCER curriculum.
Recruitment	✓	• Partners helped spread the word about the program to potential students.
Training	✓	• Partners provided training opportunities to interested students through apprenticeships and junior programs.
Placement	✓	• Partners have informed CSN staff of when they have position openings.
Program Management		
Leveraging Resource	✓	• Partners provided opportunities for students to tour their facilities.
Commitment to Program Sustainability	✓	• Staff indicated that community agencies and employers participated in an orientation in July 2016 focused on sustaining the FMO Training Program set to start in September 2016, which suggests partners have been involved in program sustainability.

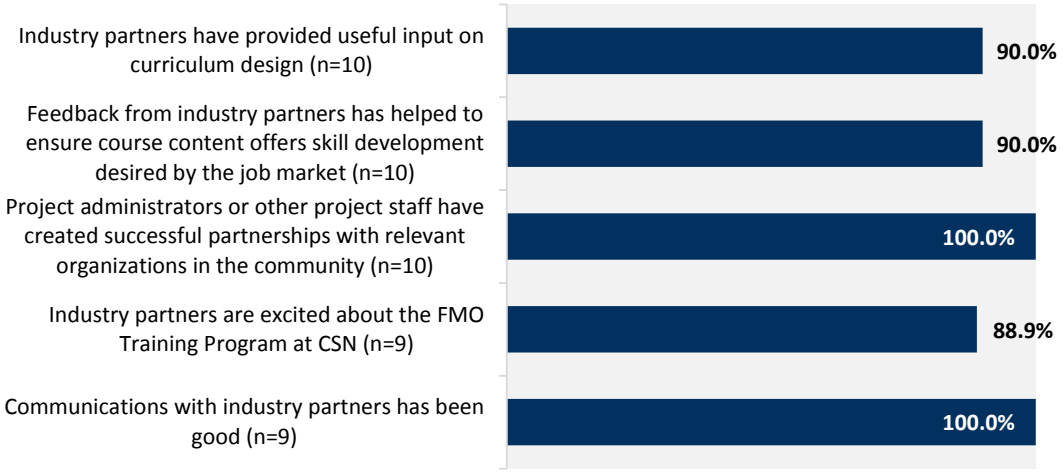
"The facilities management group that I work with and the hotels we work with provided input regarding what they need; we looked at a curriculum that provided what they need and it was a pretty simple decision."

"We actually had one of the larger casinos in the area call us up because they were implementing a junior engineering program, and they wanted students from our program to apply for that."

"Several potential employers in the area including casinos, Ocean Spray, Holiday Inn Express, and vacation clubs have connected with us. They have given us tours and have told us when there are positions open. Then, we let students know about those openings."

Feedback on the Year 3 staff survey further revealed that staff had positive perceptions of industry involvement as shown in Figure 7 below. In particular, 100% of staff agreed that communication with industry partners had been good and that staff at CSN created successful partnerships with relevant organizations in the community.

Figure 7. Year 3 Staff Perceptions of Industry Involvement
(% Agree/Strongly Agree)



What factors contributed to partners' involvement or lack of involvement?

During the Year 4 project team focus group, staff shared factors contributing to partner involvement or lack of involvement. One factor hindering the extent to which partners were involved was that they were sometimes too busy; however, one factor leading to involvement was that a CSN staff member was responsible for facilitating involvement by coordinating with partners on various activities: "We have a staff member who is a liaison with the community. That's a position we created out of the need we saw…She sends out letters, organizes tours, and gets speakers to present…That has been the lifeline to a lot of potential employers."

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

Staff reported that the aforementioned facility tours were a critical contribution from industry partners. On the Year 3 staff survey they added that the most useful aspects of working with partners included "their input on the current employment practices within their industry" as well as the "clear career opportunities for our graduating students" provided by those partners. In addition to offering facility tours, sharing employment practices, and providing career opportunities for program completers, a staff member noted that a critical contribution from a partner enabled CSN to incorporate "new trainings and certifications" into the FMO Training Program.

Which contributions from partners had less of an impact?

Staff did not report industry partner contributions that were less impactful.

Program Strengths & Constraints

Assess the operational strengths and weaknesses of the project after implementation.

Strengths

Throughout the grant, staff and students disclosed several strengths of the FMO Training Program. Most notably, students and staff commented on the program's ability to support students in obtaining

employment through the skills and expertise they are taught and the career guidance they receive: "The Facilities Maintenance Program assists students in gaining the skills and expertise to explore new career pathways and find employment in those new careers." A staff member in Year 3 added that "there is no other course offered in the city or state like our FMO Training Program."

Furthermore, students and staff commented that the program's curriculum and design were strengths of the program. When praising the program design, students and staff both mentioned the usefulness of hands-on training offered through the program. For example, one student in Year 3 stated that it "provides a lot of good theory information combined with hands-on training," while a staff member in Year 2 echoed those sentiments: "The program touches on the important trades involved with being a Facilities Maintenance worker. It allows the students to learn the theory and then apply what they have learned from the book to real life, hands-on, experiences in the lab." Furthermore, another staff member noted that hands-on experience along with knowledge in safety is beneficial for students looking to obtain and retain employment: "The students got some hands on experience for entry-level work along with the importance of safety so they can keep that job."

Students and staff also explained that those involved in implementing the FMO Training Program were also a strength of the program. A student in Year 4 described instructors as "very helpful, knowledgeable, and patient." Another student in Year 4 added that "the program has the best instructors and helping staff."

> "The instructors all have field experience or are in the trades. This gives the students real world situations to better understand what is talked about in the book."
>
> *-FMO Training Program Staff (Year 3)*

Another program strength was that CSN had the institutional capacity to make updates to the program that improved it for the better. Partway through the grant, CSN saw a need to offer both day and evening classes and initiated the change as a result:

> "One of the turning points for the program was when we added the morning class and had two classes going simultaneously. The instructors for the morning and evening classes often times coordinated with each other, so it was easier for students to transition from one time of day to the other if they got a job requiring them to change the time of day they took classes."
>
> *-FMO Training Program Staff (Year 4)*

The program also demonstrated institutional capacity when staff implemented a suggestion made by an industry partner. This partner recommended that CSN add the EPA 608 certification to the program (see Table 6). In order to include this certification in the program, instructors had to update curriculum and become certified test administrators. The program had the institutional capacity to make these updates to the program, which in turn was a strength of the program as these changes allowed more students to enroll in and complete the program and provided them with an additional industry-recognized credential.

Program Constraints

In the early stages of the grant, program constraints described by staff included the inability to implement the program as quickly as anticipated due to not receiving an approved budget for several months and spending time finding a location for the program and hiring certain personnel. This constraint was attributed to being a state designated grantee, because funding was awarded later than it was for grantees

who applied for funding. In addition, despite some students and staff describing the hands-on opportunities as a strength of the program, others suggested they would have liked to have had more hands-on learning opportunities: "It would help a lot if it were more hands-on for all of the courses." Finally, students indicated that it would have been beneficial to improve recruitment efforts by better publicizing the program, because several students noted it was difficult to find information about the program. One student mentioned that CSN staff did not provide information about the FMO Training Program when probed about a possible program in which to enroll: "I went to the school asking for a program and told them I'm a mechanic. I asked if there is anything for me but they didn't say anything about this program."

Program Sustainability

In the Year 4 project team focus group, staff discussed their plans for program sustainability. At that time, staff thought there would be interest from potential students and had looked into how they could sustain the program by assessing the cost associated with keeping the classes going and the likelihood of being able to recruit enough students. Staff estimated that the program could continue if they could recruit 10 to 15 students per class while also requiring a higher cost to students and a lower salary for instructors.

In follow-up communication with staff, evaluators learned that CSN had the institutional capacity to retain the FMO Training Program. The program transitioned to the revenue-side of the college and started on September 5, 2016. The sustained program will offer classes at the same time, in the same location, and with the same instructors as the grant program. An orientation for community agencies and employers was held on July 18, 2016 (see Table 6), while potential students interested in the program attended an orientation on July 29, 2016.

TAACCCT Outcomes

TAACCCT grants are geared toward the attainment of both academic and employment outcomes for participants. Education outcomes include program completion, continued enrollment, credential earned, and further enrollment in education. DOL is also interested in credit attainment; however, the FMO Training Program is a non-credit program, so that outcome is not addressed below. Employment outcomes include wage increases for incumbent workers as well as entered employment for non-incumbent workers. DOL is also interested in whether completers retain employment; however this data was unavailable. The education and employment outcomes specific to the FMO Training Program participants are detailed in the sections below.

Some outcome data are presented along with outcome data from the Building Technology program at CSN. Evaluators had planned on conducting an impact study utilizing a quasi-experimental comparison cohort design with a historical comparison group. In an attempt to do so, evaluators first worked with staff with the CSN Institutional Research (IR) Office to identify a potential comparison group. Evaluators and IR Office staff determined that the Building Technology program would be the most appropriate comparison group. This one year, 30-credit certificate program was similar to the FMO Training Program in that the curriculum focused on training participants in the area of construction. In fact, the participants in the identified group further focused their studies in the areas of either plumbing, electrical, or construction management. Another reason for selecting this program as a potential comparison group was that the program had an ample number of students (n=71) enrolled in the program from fall 2010 to

spring 2013 to be used as a comparison group for the FMO Training Program (n=126), whereas other programs under consideration did not have nearly enough participants for a comparison group. Additionally, similar to the FMO Training Program, the Building Technology program was also racially diverse and comprised of mostly male students. Specifically, 81.7% of participants were male and 18.3% were female. Forty-four percent (44.6%) were White, 26.1% were Black or African American, 20% were Hispanic/Latino, and 10.8% were American Indian, Native Hawaiian, or more than one race.

Despite these efforts to identify a comparison group with similarities to the FMO Training Program, evaluators were not able to move forward with plans to use a comparison group as part of an impact study. While PRE was able to obtain some academic outcomes for the Building Technology program from the CSN IR Office, we were not able to do so for employment outcomes. In fact, evaluators at PRE attempted to obtain employment outcome data from the Nevada Department of Employment, Training, and Rehabilitation (DETR) for both FMO Training Program students and Building Technology program students. CSN initially had an agreement in place for obtaining employment data from DETR as discussed with evaluators during site visits; however, attempts from evaluators to obtain these data yielded no results. DETR told evaluators that they were legally prohibited from sharing the requested information with a third-party such as PRE. Evaluators attempted to have CSN staff work directly with DETR to obtain the data as originally planned but given DOL's recent change in reporting requirements that allow for employment data to be self-reported, CSN declined to get involved as they were satisfied with employment data they collected from FMO Training Program students upon program entry and exit. Because evaluators could not obtain employment data from DETR for either group of students, they had to attempt to gather employment data for Building Technology program students using other methods. PRE reached out to a representative at the CSN IR Office to gather these data; however, data was not available for program completers. The IR Office representative had attempted to obtain the requested employment data for the comparable Building Technology program through Perkins survey data, which was not available for program completers. Furthermore, evaluators are satisfied with an analysis of only FMO Training Program participant employment outcomes, because evaluators are interested in employment outcomes for program completers and only seven students completed the Building Technology program, too small a sample for drawing any meaningful conclusions about this program.

As a result of a lack of employment data, evaluators determined it was more appropriate to conduct an outcomes only analysis rather than an impact analysis. Despite not utilizing an impact analysis as part of this study, some academic outcomes presented below include comparisons between the FMO Training Program and the Building Technology program.

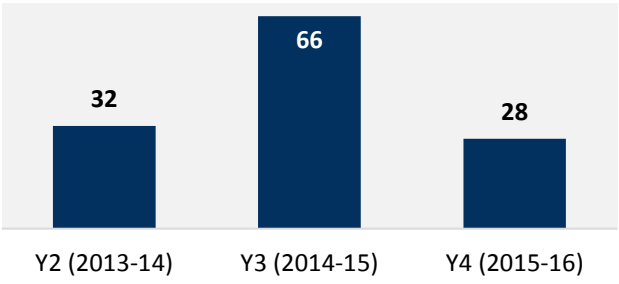
Academic Outcomes

Education outcomes for FMO Training Program participants were recorded by CSN staff and shared with evaluators. PRE also included items on the annual student survey and the student follow-up survey that assessed continuing education. PRE obtained academic data for the comparable Building Technology program from the CSN IR Office.

At the time that CSN shared student outcome data with evaluators, 126 students had enrolled in the FMO Training Program. A break-down of enrollment by grant year start date is shown in Figure 7, which illustrates that enrollment was highest in Year 3 of the grant. CSN started offering programming early in Year 2 of the grant, so that is why Year 1 is not represented below. For Year 4 of the grant, 18 of the 28

students were in cohorts that had not been enrolled long enough to complete the program at the time data were shared, so in assessing other outcomes below, the sample size (n) is sometimes 108.

Figure 7. Number of FMO Training Program Participants by Year

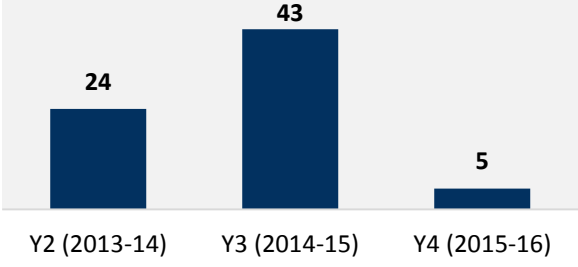


CSN shared student data with PRE evaluators on July 14, 2016. As mentioned previously, at that time, there were 18 students who had enrolled in the program but had not had enough time to complete the program. As a result, the findings that are presented below reflect the outcomes as of July 2016; these outcomes may have changed since that time, so the final Annual Performance Report (APR) that CSN is submitting in November may include updated data on those participants that differs from what is presented below. Therefore, the evaluation report is a snapshot of grant activities and outcomes from the beginning of the grant through the approved performance extension period.

Program Completion

Figure 8 illustrates the number of FMO Training Program students who completed the program by earning a CSN Certificate of Completion. The highest number of earned certificates was in Year 3, which was to be expected since that year also had the highest number of enrollees.

Figure 8. Number of FMO Training Program Completers by Year



Overall, a total of 72 of the 108 participants completed the FMO Training Program, for a total completion rate of 66.7%. Alternatively, the comparable Building Technology program had a much lower completion rate with only 9.9% (n=7) of the 71 participants completing the program. The disparity between the two programs was 56.8 percentage points.

Retained in Program

For the retention outcome, 14 of the 54 students who had not completed the program were retained in the FMO Training Program for a retention rate of 25.9%. These 14 students retained in the FMO Training Program were from the cohorts mentioned previously that had not had enough time to complete the program. Similar to completion rates, retention were higher for the FMO Training Program than for the comparable Building Technology program, which retained 12.5% (8/64) of students as of fall 2013.

Credentials Earned

Credential attainment includes both the CSN Certificate of Completion and the industry-recognized certificates offered through the FMO Training Program. While there were six different credentials offered through the program, CSN did not provide data on CPO or NCRC attainment. Furthermore, as mentioned earlier, the EPA 608 coursework and accompanying assessment was not offered until the end of Year 2, so not all students had the opportunity to earn this certification. Table 7 breaks down the credential attainment by certificate and year. The table also shows that Year 3 participants earned the most certifications; this was to be expected given the larger number of participating students and the late administration of the EPA 608 certificate. In total, 108 participants earned 339 certifications as part of the FMO Training Program.

Table 7. Number of FMO Training Program Credentials Earned (n=108)

Credentials	Year 2 (2013-14)	Year 3 (2014-15)	Year 4 (2015-16)
CSN Certificate of Completion	24	43	5
NCCER	26	47	3
OSHA 10	25	48	4
Heartsaver CPR/First Aid	27	47	4
EPA 608	1	29	6
Total Certifications	103	214	22

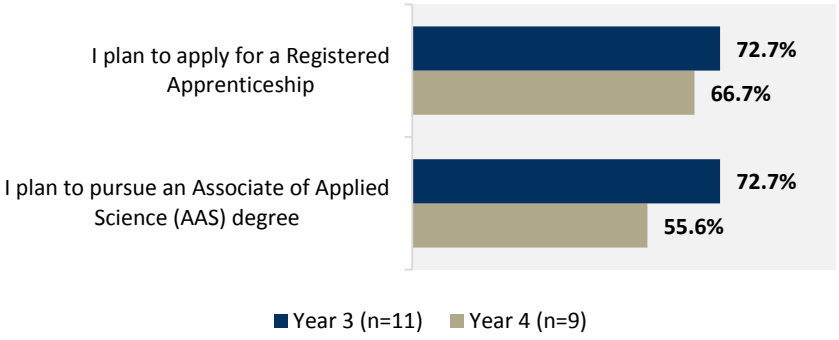
FMO Training Program staff lauded the importance of students obtaining these industry-recognized credentials; one person stated that "going to an employer and showing them a certificate of completion for plumbing, the CPO, the EPA, or the OSHA 10 gives them a leg up in employment."

Conversely, the Building Technology program only offered a certificate at the conclusion of the 30-credit program. Therefore, seven students earned a total of seven credentials through that program.

Enrollment in Further Education

A majority of students in both Years 3 and 4 reported on the student survey that they plan to pursue additional education by applying for a Registered Apprenticeship or pursuing an Associate of Applied Science degree.

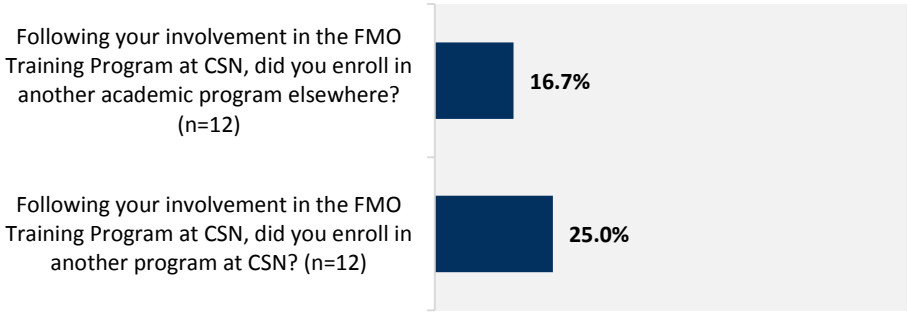
Figure 9. FMO Training Program Continuing Education Plans
(% Agree/Strongly Agree)



These results were in alignment with the 65.9% (83/126) of program participants who told CSN staff at the time of their enrollment that they planned to pursue additional education following the conclusion of their involvement with the FMO Training Program.

In a follow-up survey administered at the conclusion of the grant program, students who completed the program indicated whether they had enrolled in an academic program elsewhere or at CSN. As Figure 10 illustrates, only a small number of completers had enrolled in another academic program.

Figure 10. Enrollment in Further Education
(% Yes)



Those who had enrolled in further education elaborated on these academic endeavors with a student who enrolled elsewhere indicating participation in an online class for appliance repair while three of the students who enrolled at CSN mentioned pursuing an Associate's Degree with no other specifics provided.

Similarly, 28.6% (2/7) of Building Technology program completers enrolled at CSN following the completion of that program. Data were not available regarding whether these students enrolled in an academic program elsewhere.

Related to this data, one staff member commented that involvement in the FMO Training Program inspired some students to pursue further education: "Some of the students decided to go back and try to

get their high school equivalency or they went back into school. I think that this program for some of them has been a good stepping stone to remind them of how education could further them in their careers."

Employment Outcomes

Employment outcomes for FMO Training Program participants were recorded by CSN staff and shared with evaluators. CSN collected these self-reported data from students at the beginning of their involvement in the program and at the conclusion of their involvement in the program.

Wage Increase

Evaluators calculated the employment outcome of wage increase for incumbent workers, which included students who indicated they were employed at the start of the FMO Training Program. Of the 30 program completers who indicated they were employed prior to enrollment, 26.7% (n=8) reported they received a wage increase.

Entered Employment

Evaluators calculated the outcome of entered employment for non-incumbent workers who completed the FMO Training Program. Of the 40 program completers who indicated they were not employed before the program, 52.5% (n=21) reported that they had entered employment at the conclusion of the program.

> "I have received several follow ups from students after they finished the program. They always report back letting us know that they've been employed and have a good job with good pay."
>
> *-FMO Training Program Staff (Year 4)*

TAACCCT Outcomes Summary

The results of the TAACCCT outcomes study showed some positive outcomes for the FMO Training Program students. A review of academic outcomes from a comparable program revealed that the FMO Training Program yielded more favorable academic outcomes for students. The 56.8 percentage point difference in completion rates was most notable, while the FMO Training Program also provided students with more opportunities to obtain industry-recognized credentials that could aid them in their quest for employment. With regard to employment, although a true impact study with a historical comparison group cohort could not be utilized as initially planned, an analysis of program participant employment outcomes showed some favorable results as well with a quarter (26.7%) of incumbent workers receiving wage increases and a majority (52.5%) of non-incumbent workers entering employment. These findings suggest that the FMO Training Program has a positive impact on participants' employment outcomes.

Evaluation Insights

Although TAACCCT grant funding will conclude at CSN in September 2016, PRE would like to offer some insights regarding the FMO Training Program that will be sustained or any other newly developed programs at CSN. These insights are based on the data collected through the evaluation activities referenced in this report.

1. CSN staff helped improve the program during the grant by adding an additional section of the class at a later time in the day to accommodate students and including the EPA 608 certification at the recommendation of an industry partner. In addition to the program possessing the institutional capacity needed to allow for these improvements to be made, CSN staff

demonstrated the importance of responding to industry needs and updating the program accordingly. Program staff should continue to be open to suggestions for improvement as the program is sustained as the adjustments made thus far have had a positive impact on the FMO Training Program and its students.

2. The 126 students who participated in the FMO Training Program during the grant were fewer than the 250 students originally projected by CSN. These lower participation numbers could be due to the need to improve program visibility to potential participants. CSN could consider improving program recruitment efforts moving forward. One such method for doing this could be to ensure more staff at CSN are aware of this program, so they can direct potential students to it.

3. Hands-on learning opportunities were important to students. Several students and staff mentioned these opportunities as a program strength, while other students suggested that more hands-on experiences would have been beneficial. Therefore, in sustaining the program it is important that a hands-on learning approach be implemented when possible.