Final Evaluation Report of Assisting Workforce by Advancing Knowledge for Employment (AWAKE)

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September 2017

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Executive Summary

In October 2013, Purdue University Northwest[1] was awarded, approximately, $2.74M[2] from the United States Department of Labor's (USDOL) Trade Adjustment Assistance Community College and Career Training Grant (TAACCCT) Program to fund Project: Assisting Workforce by Advancing Knowledge for Employment (AWAKE). Project: AWAKE is designed to address the gap between workforce preparedness and regional opportunities available in advanced manufacturing industries. In this intervention, Trade Adjustment Assistance (TAA) eligible workers, veterans, displaced, and under-skilled workers participated in advanced learning sessions with the opportunity to complete up to four stackable and latticed certificates as Mechatronics Technicians and Industrial Machinery Mechanics. Project: AWAKE was designed, on a rolling-basis, to enroll a cohort of approximately 15 participants per month for 20 months, for a total of 300 unique participants.

The Project: AWAKE curriculum builds on previous work conducted by the project's principal investigator (PI) and the Co-PI. In this previous work funded by the Advanced Technological Education (ATE) directorate of the National Science Foundation (NSF), Purdue University Northwest, Ivy Tech Community College of Indiana (Ivy Tech), and the College of Dupage developed modular Mechatronics Technicians and modules related to Industrial Machinery Mechanics curricula because there was an identified need for more rapid and effective training of the workforce (Latif & Zahraee, 2012). Six modules were developed and twelve modules were enhanced under the NSF-ATE grant. Twelve additional modules were developed under another NSF grant bringing the total to 30 modules. Evaluation of this previous work suggests that these modules were well received by participants.

Evaluation Design

The theory of change undergirding Project: AWAKE is that if TAA-eligible workers, veterans, and other workers are provided an opportunity to quickly advance their credentials in a field with job openings, in this case as a Mechatronics Technician or Industrial Machinery Mechanics, then, participants may increase their earnings and employability. A comprehensive evaluation of Project: AWAKE was designed to test the veracity of this theory that involved an implementation study and an impact study. The implementation study focused on how the training program was being put into place. The implementation study was driven by four required questions: *How was the curriculum selected, used, and created?; How were programs and program design improved or expanded using grant funds?; Did the grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?;* and *What contributions did each of the industry partners' make?* The implementation study utilized a mixed-methodological approach, gathering both quantitative and qualitative data. Specifically, data were gathered from document reviews, focus groups & interviews, surveys, PMMI test performance, and proprietary data sources. Data were gathered from these sources

[1] Purdue University Calumet was renamed Purdue University Northwest in 2016.
[2] The exact amount of the grant was $2,741,491.00.

all four years of the project except data from proprietary data sources, gathered only in the final year of the project.

Targeted participant outcomes outlined by the US Department of Labor were gathered and an outcome study was implemented. The two overarching questions of the outcome study were *Did Project: AWAKE increase workers' employment?* and *Did Project: AWAKE impact workers' earnings?*. While a rigorous impact study was originally designed and expected to be implemented, an outcome study was actually completed. This change in design was attributable to the protracted process of obtaining state wage data and the inability to identify an organization who would allow obtainment of wage data for non-AWAKE students.

Implementation Study Findings

There are a number of key findings that emerged from the implementation study. These are summarized below:

- Of the 30 modules created with ATE NSF funding, 12 modules that focused on mechatronics training were used as the foundation for the Project: AWAKE curriculum. An additional six modules for training in mechanical components, safety, and some electrical topics with a similar hands-on emphasis were developed to complete the Project: AWAKE curriculum. In total, the Project: AWAKE curriculum included 18 modules.

- The project leaders leveraged grant funding to secure additional funding to obtain substantially increased institutional capacity through the acquisition of a 18,000 square foot *Commercialization and Manufacturing Excellence Center (CMEC)*. Not only did the building expand capacity, but it also increased the likelihood of the sustainability of Project: AWAKE through post-USDOL funding.

- While recruiting the projected number of participants was not problematic, retaining participants in Project: AWAKE was challenging. The primary reason participants left, however, was for job opportunities.

- In regard to the course materials, few modifications occurred across the implementation of Project: AWAKE. The most notable modification was a change in the presentation sequence of the modules. Based on participant feedback from the first cohort, module offerings were rearranged putting mechanical components first followed by electrical and programmable logic controllers (PLCs). This modification in the curriculum resulted in increased retention.

- Two other key modifications that occurred were the identification of instructors ideally suited for working with this particular audience (e.g., adult learners) which occurred after cohort 2, and the increase in workforce development support services implemented after cohort 9.

- The hands-on pedagogical approach appeared to make a difference in students' learning and resulted in student success. However, there was a tension between allocating time to hands-on

learning and formal preparation for certification exams. Because of the nature of the project, the project team opted to focus on hands-on learning rather than formal learning.

- Of the four industry recognized certification exams, the Mechanical Components I exam had the highest pass rate (68%). Indeed, performance on this exam was comparable to the general population of PMMI test takers.

- There was a delay in the formalization of articulation agreements with a partnering organization, Ivy Tech. The delay was due to Ivy Tech requirement for a system-wide articulation agreement (e.g., for the entire state) and not just with the regional institutional (e.g., for one campus) as originally proposed in East Chicago (Illinois) and Valparaiso (Indiana).

Participant Outcomes Findings

- The project team expected to enroll 300 unique participants over 20 cohorts, but was able to enroll 305 unique participants over 21 cohorts.

- In general, when projections for the outcome measures were not achieved, the original goal was based on a misinterpretation of the definition of the measure at the proposal development phase. A deeper understanding of the definition of each performance measure was gained over the course of the project.

- Similarly, 300 participants were expected to complete credit hours, however, AWAKE is not a credit offering program. Therefore, no participants earned credit hours.

- It is impressive that the number of students who pursued further education after program completion exceeded projections in spite of the partnering organization not finalizing the articulation agreements. In the absence of a formal articulation agreement, the project did secure confirmation from the partnering institution regarding the process for granting credit.

- Wage data were obtained for two-thirds of the participants. Consistently, findings for the outcome measures related to wage data are based on two-thirds of the participants. Because of the proximity of the training site to Illinois, it is possible that a portion of the participants obtained employment in the neighboring state.

- There were 70 individuals (51%, n=138) who were employed the quarter after the quarter of program exit with an average quarterly wage of $9,721. Of those 51 (36%) individuals were retained in employment.

- Of the 164 individuals who self-identified as an incumbent worker, only a small fraction of both initial and post-wage data were available. The average quarterly wage for incumbent workers for the quarter after the quarter of program exit was $16,101.

Conclusions

- Maintaining relatively high levels of retention in a relatively short training program was challenging. However, addressing curriculum and support-related issues resulted in higher retention rates.

- Concern emerged between focusing on hands-on training and preparing participants for the certification exam. The decision was made to focus on hands-on learning rather than theoretical learning which resulted in higher retention and employment rates.

- Wrap around services, such as Friday tutoring, career counseling and WorkOne support, may have make more of a difference for participants with a GED than for participants with a high school diploma or with some college experience (comparing participants from cohorts 1 – 8 and cohorts 9 – 21). Moreover, this difference appears to make a difference on retention in the Project: AWAKE.

- An interesting finding that emerged from this work, is that nearly 89% of individuals who reported obtaining new employment, did so after completing on the job training. This finding may provide insight into the pipeline for displaced workers securing new employment opportunities.

Implication to Workforce Development Research

- Surprisingly, self-reported data provided by participants was lower than the number of individuals actually pursuing further educational opportunities. This finding is important to workforce development researchers as self-reported data are used in lieu of officially obtained data.

- One reason that job placements were slightly lower than projected was due to a relatively large percentage of participants who did not show-up to placement opportunities. Additional research needs to be directed at an intervention that would reduce self-sabotaging behaviors.

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Section I: Introduction

Like many regions located within the "rust belt", during the late 2000s, northwest Indiana was impacted by numerous companies moving production work outside of the US. Indeed, Trade Adjustment Assistance (TAA) certifications between 2010 and 2013 as determined by the U.S. Department of Labor (USDOL) demonstrated that several communities in the region had been directly impacted by foreign trade. Because of the heavy emphasis in manufacturing, many traditional manufacturing jobs were impacted as evidenced in the unemployment rate. In 2013, the national unemployment rate was at 7.3%, however, for Indiana and the Northwest Indiana region specifically, the unemployment rate was at 8.1% and 9.3%, respectively. Additionally, during that timeframe, nearly 8,000 veterans registered with WorkOne, the region's workforce development office for job search assistance. With these events taken together, there arose a strong need for TAA, veteran, and other displaced workers to receive additional training.

Figure 1. Targeted geographic region of Indiana for Project: AWAKE.

Because of the evidence supporting job opportunities such as mechatronics/electro-mechanical technician and industry machinery mechanics, Purdue University Northwest[3] backed by $2.7M in funding by the USDOL's Trade Adjustment Assistance Community College and Career Training Grant (TAACCCT), sought to provide training to workers by implementing Project: *Assisting Workforce by Advancing Knowledge for Employment (AWAKE)*. Project: AWAKE is designed to address the gap between workforce preparedness and regional opportunities available in advanced manufacturing industries. Specifically, the theory of change undergirding Project: AWAKE is that if TAA-eligible workers, veterans, and other displaced workers are provided an opportunity to quickly complete their credentials in a field with job openings, in this case as Mechatronics Technicians and Industrial Machinery Mechanics, then, participants will improve their earnings (see also Appendix A for the project logic model). The project had three goals:

1. Provide foundational skills and competencies in two similar occupations, Mechatronics Technicians and Industrial Machinery Mechanics, by developing and delivering training programs;
2. Provide credentials through industry-recognized and USDOL endorsed certifications at four competency levels; and
3. Provide career pathways to Associate degrees through Ivy Tech Community College-Valparaiso.

[3] The grant was awarded to Purdue University Calumet located in Lake County. In 2016, Purdue University Calumet unified with Purdue University North Central forming Purdue University Northwest.

The AWAKE Context

Achieving the goals of AWAKE were accomplished through a strategic partnership between Purdue University Northwest and Ivy Tech Community College of Indiana (Ivy Tech). Purdue University Northwest is located in northwest Indiana and serves nearly 15,000 students enrolled in baccalaureate, master's, and professional doctorate degree programs. Until 2012, Purdue University Northwest also conferred associate degrees. Following years of planning, in 2009 the state introduced a plan to strengthen its community college system by aligning the responsibility of conferring associates degrees to Ivy Tech. Ivy Tech is comprised of 30 campuses and 14 regions, it is the only state-wide community college system in the country and serves nearly 150,000 students annually.

Project: AWAKE provides participants with stacked and latticed credentials. By completing 21 weeks of training, participants had the opportunity to earn four industry recognized certificates. Following completion of the certification process, participants who were not currently employed could participate in a four-week internship program depending on the current availability of internship placements; those already employed returned to work. Moreover, participants could continue their educational experience at Ivy Tech to earn an associate's degree and transfer to Purdue University Northwest to pursue a bachelor's degree.

Background on TAACCCT

In 2009, Congress authorized the USDOL TAACCCT grant to allow eligible higher education institutions to make significant reinvestments to address the "challenges of today's workforce" as part of the American Recovery and Reinvestment Act[4]. Beginning in 2011 and across four rounds of funding, the USDOL awarded nearly $2 billion dollars to 256 grants ensuring that an award was granted in each state for each round of funding. Project: AWAKE was funded during the Round 3 funding cycle.

Overview of the Report

Round 3 grant recipients were required to complete an implementation study and an outcome study. This report captures these findings and unfolds in the following way: after the introduction, an overview of the evaluation plan is provided. In the next two sections, the findings from the implementation and outcome studies are presented. The report ends with key lessons learned and implications to future education and workforce development research efforts.

[4] Retrieved from https://doleta.gov/taaccct/fundinfo.cfm.

Section II: The Evaluation Design

A comprehensive evaluation of AWAKE was designed in collaboration between the project team and the third-party evaluator. At project initiation, the third-party evaluator facilitated a day-long work session towards articulating the evaluation. Specifically, the project team and third-party evaluator reviewed the evaluative expectations outlined in the Round 3 grant solicitation, articulated the logic model which provided a visual representation of the theory of change undergirding the project, reviewed and expanded on the required research questions, discussed the data gathering plan, and other related topics. The resulting evaluation plan included a thorough implementation study and an impact study which was summarized in a detailed evaluation plan that received approval from the USDOL. However, due to the inability to obtain wage data from an appropriate comparison group as well as obtaining wage data from AWAKE participants two weeks prior to the submission date of the final report, the impact study was converted into an outcome study.

Implementation Study

Implementation Study Data Sources

- Site visits
- Document review
- Focus groups & interviews
- Surveys
- PMMI test performance

The implementation study was designed to assess the initial implementation of AWAKE and the ongoing monitoring of program implementation. The implementation study was driven by four required DOL questions supplemented by project level evaluation questions (see Appendix B). The implementation study utilized a mixed-methodological approach, gathering both quantitative and qualitative data. Specifically, data were gathered from document reviews, focus groups & interviews, surveys, The Association for Packaging and Processing Technologies (referred to as PMMI) test performance, and proprietary data sources. Data were gathered from these sources all four years of the project except data gathered from proprietary data sources, only gathered in the final year of the project.

Site visits. A total of four site visits were completed overall. During each of the site visits focus group and interviews with the project team, instructors, or participants were completed. Additionally, many of the site visits also included tours of the labs and classroom observations.

Document review. Various documents were reviewed to assess the completion of tasks while also understanding factors that catalyzed and impeded project implementation. Documents included faculty and student developed resources, feedback from the Federal Program Officer (FPO), advisory board minutes, and quarterly reports.

Focus groups & interviews. Conducted structured focus groups and/or interviews with participants, project staff, and representatives from partnering organizations. Suggestions for strengthening the implementation were provided early in the project through weekly discussions with the evaluation team and during the first year of the project, monthly with the entire project team. Additionally, the third-party evaluator provided reports every six months beginning with the completion of the first five

cohorts. These reports were intended to provide comments on the fidelity of implementation relative to the conceptual framework, and other recommendations to strengthen implementation as not to interfere with outcomes analysis.

Surveys. Surveys were disseminated to participants and industry partners through the implementation phase of the project. Specifically, satisfaction surveys were disseminated to participants at the end of each training session and surveys gathering employment and wage data were disseminated periodically after a cohort ended to AWAKE completers and non-completers.

PMMI Test Performance. Participants had the opportunity to complete four PMMI examinations. Performance on and passage of the PMMI test was used to help elucidate how well the participants were performing.

Outcome Study

The outcome study was designed to understand how AWAKE participants versus non-AWAKE students performed on key outcomes measures. The overarching questions driving the outcome study were: *To what extent did Project: AWAKE increase workers' employment?* and *To what extent did Project: AWAKE impact on workers' earnings?*

An impact study was originally designed but because an appropriate entity could not be identified who would grant permission for wage data to be obtained for their students or participants, the impact study was not fully implemented. Furthermore, it was not possible to obtain a comparison group from Purdue University Northwest because it does not offer any comparable certificate programs. Additionally, Project: AWAKE was not "oversubscribed" meaning that a larger number of individuals were interested in the project then space available. As such, using interested individuals who do not participate was not a viable option as a comparison group. Therefore, it was originally expected that Ivy Tech would be able to provide comparison data, however, data needed to be obtained from the systems office and not the regional institution. A final memorandum of understanding for data sharing could not be reached. Data sharing agreements where sought with other entities but compiling an exhaustive list of related certificate programs in Illinois, Indiana, Michigan, and Ohio. While there was initial interest from three entities, again, a final data sharing agreement could not be obtained.

Data were gathered through a document review, participant surveys, and proprietary data sources. The former two data sources have already been discussed, therefore, only the proprietary data sources from the National Student Clearinghouse and the State of Indiana Workforce Development will be detailed in this section.

Outcome Study
Data Sources

- Document review
- Participant Surveys
- State of Indiana Workforce Development

National Student Clearinghouse. Data regarding the continuation of education after completing Project: AWAKE were obtained from the National Student Clearinghouse. The National Student Clearinghouse is a non-profit organization that provides degree and enrollment verification.

Indiana Department of Work Force Development. With due diligence over the course of the entire project by the project team and the third-party evaluator, wage data were obtained from the Indiana Department of Work Force Development IDWD. However, due to the initial state-level policies and institutional logistics, these data were not obtained until mid-September 2017.

Section III: The Implementation Study

An implementation study was conducted to document how the project was created and run. To lay the foundation for the study, the theory of change was articulated in a logic model (see Appendix A). The theory of change undergirding Project: AWAKE is that if TAA-eligible workers, veterans, and other workers are provided an opportunity to quickly complete their credentials in a field with job openings, then, participants will improve their earnings. The implementation study was driven by four (4) required research evaluation questions with additional questions supplementing these required ones. The implementation research questions are conceptually divided into four themes: The Intervention; Capacity Building; Recruitment; and Participant Performance. The interplay between the research questions and the data gathering methods are presented in Appendix B. The findings are presented around each of these themes.

The Intervention


Figure 2. Participants from cohort 3 working with an instructor.

The AWAKE curriculum builds on previous work conducted by the project's principal investigator (PI) and a Co-PI. In this previously work, funded by the Advanced Technological Education (ATE) directorate of the National Science Foundation (NSF), Purdue University Northwest, Ivy Tech Community College of Indiana (Ivy Tech), and the College of Dupage developed modular Mechatronics Technicians and Industrial Machinery Mechanics curricula because there was an identified need for more rapid and effective training of participants (Latif & Zahraee, 2012). Specifically, six to eight electrical and mechanical engineering technology courses were augmented and reorganized into 30 enhanced modules. Evaluation of this previous work suggests that these modules were well received by participants. For instance, evaluation findings indicated that the modules increased participants' perception of job readiness. When participants (n=10) were asked, "As a result of this course, [I would rate] my ability to select and apply the knowledge, techniques, and modern tools of the discipline to broader-defined engineering technology activity," they reported high agreement (mean = 3.80 out of 4.00).

Of the 30 modules created with ATE NSF funding, 12 modules that focused on mechatronics training were used as the foundation for the AWAKE curriculum. An additional six modules for training in mechanical components, safety, and some electrical topics with a similar hands-on emphasis were developed to complete the AWAKE curriculum. In total, the AWAKE curriculum included 18 modules.

The modules were reviewed by individuals with a background in industry, curriculum building, workforce training and development. The areas of review included: Course design and course schedule; learning outcomes and objectives; instructional materials and lab resources; assessment; and industry

based application. All modules received high ratings from reviewers. The modules as well as the results from the third-party review are available at SkillsCommon[5]and from the project's website.[6]

These modules were delivered in an in-person, small classroom format. As a consequence, cohorts were limited to 15 – 17 participants. The AWAKE program was designed, on a rolling basis to enroll 15 participants per month for 20 months, for a total of 300 participants. While the originally developed modules included an experiential component, the modules were modified to emphasize this aspect with stronger hands-on components. This delivery method allowed for participants to receive personalized attention from the instructors, which is important because most participants had not received formal academic instruction for several years. The delivery method was challenging because of the necessary coordination to ensure adequate space for several cohorts of participants running simultaneously.

Stacked and Latticed Credentials

The course sequencing evolved over time. Originally, the PLC module was presented early in the curriculum but was moved towards the end of the training because the program team believed it should be positioned in the curriculum after participants had a stronger grounding in the other topics. Moreover, based on feedback from participants in the first two cohorts, the electrical module was placed towards the end of the training for a similar rationale (see Table 1).

Proposed Schedule	Cohorts #1 and #2 Schedule	Cohorts #3 – #21 Schedule
Electrical	Electrical	CAD/Blueprint
PLC	CAD/Blueprint	Mechanical
CAD/Blueprint	Mechanical	Electrical
Mechanical	PLC	PLC

Table 1. Ordering of modules outlined in the proposal, the first two cohorts, and cohorts #3 – #21.

The AWAKE curriculum was designed to provide participants with the opportunity to earn industry recognized credentials. The curriculum was aligned with four stacked and latticed credentials offered by PMMI. After each module participants could take an examination to earn a credential in *Industrial Electricity 1 and 2*; *Mechanical Components - 1*; and *Programmable Logic Controller (PLC) -1*. As such, a participant could finish AWAKE with up to four credentials. Using funds available through Purdue University Northwest, Project: AWAKE offered the PMMI tests to participants at no-cost.[7]

Workforce Development Support Services

In addition to receiving training in an area with job opportunities, the Project: AWAKE team also imbedded workforce development support services to increase the employability of participants. For instance, the project team made arrangements allowing AWAKE participants to attend an all-day job fair for participants at Purdue University Northwest. To be able to attend the job fair, AWAKE participants

[5] https://www.skillscommons.org/discover?query=purdue+university/
[6] https://academics.pnw.edu/technology/project-awake-learning-resource-collection/
[7] USDOL grant funds were not used to pay for PMMI testing for participants.

had to first participate in a one (1) hour workshop covering resume building, business dress, and etiquette, which is now a requirement for participation in any AWAKE sponsored job fairs. The AWAKE participants who attended the event impressed several company representatives enough to inspire them to contact AWAKE for more information about the program. A subsequent job fair for AWAKE participants was held in February 2016, in which 30 participants attended. Feedback was positive about the event, and jobs were offered during the event.

Moreover, following the feedback of the FPO after cohort 8, the project team incorporated additional "wrap around services." For instance, the project team worked with WorkOne, the regional workforce development office, to provide participants with one-on-one career counseling. Interestingly, after the incorporation of these services the completion rates for individuals without any college experience increased (see Figure 3) and the percentage of individuals earning at least one PMMI certificate also increased (see Figure 4). There was not much difference on these performance outcomes for individuals with college experience.

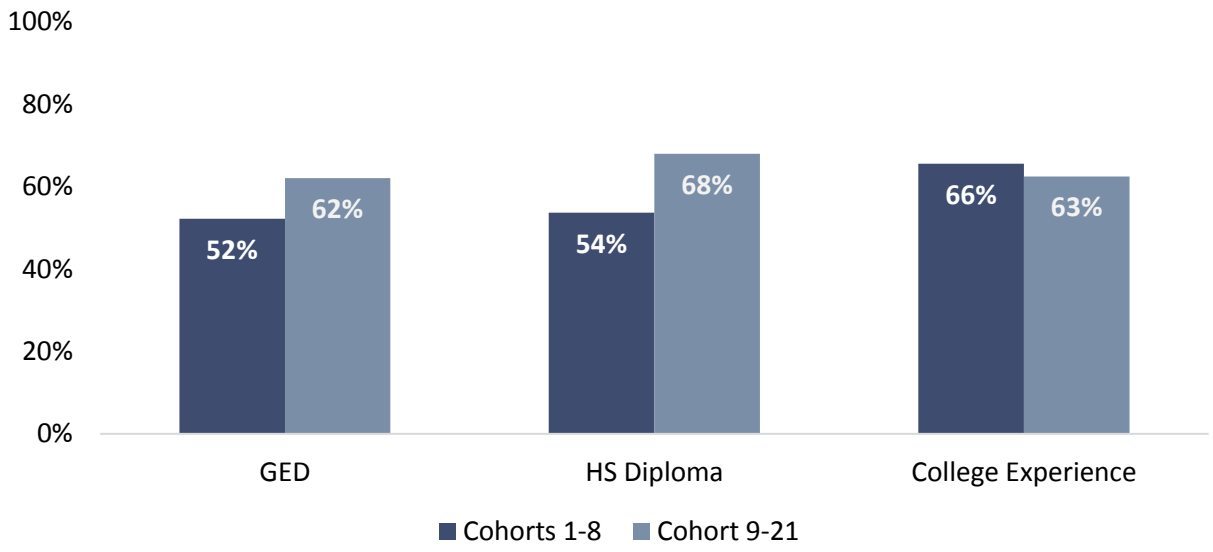

Figure 3. Completion split by education level before and after the incorporation of wrap around services (n = 305).

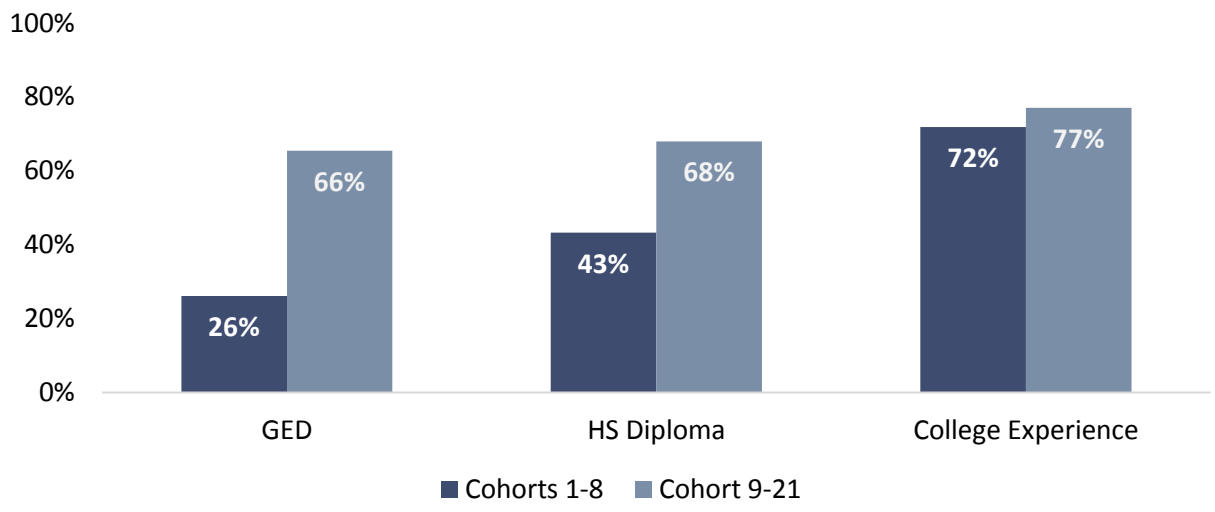

Figure 4. Percentage of individual who passed one or more passed PMMI tests by education level before and after the incorporation of wrap around services.

The project team continually reached out to potential new industry partners. Over the course of the project, the AWAKE team sponsored three open houses, two job fairs, and a reunion gathering. The project team worked with industry to place individuals into jobs. For instance, in July 2015 the project team hosted an open house for local industries and twelve organizations that the project team had not previously worked with attended. The project team surveyed their needs and worked to place participants with these companies. Based on feedback provided by the FPO the project team is working more closely with WorkOne, as well as other workforce system entities to identify additional placements.

Management Overview

The administrative responsibilities involved project oversight and daily operations (see Appendix D). Overall project oversight was provided by the PI and the Co-PIs. Day-to-day operations were the responsibilities of the project manager and a placement and internship coordinator. The project manager and placement and internship coordinator were responsible for working closely with participants to encourage attendance, ensure sufficient numbers of instructors, coordinate classroom and lab space, manage teacher assistants, and overall full participation in the training. Both these individuals worked closely with participants and provided a great deal of assistance and follow-up with job placements.

Capacity Building

Figure 5. The Purdue University Northwest Commercialization and Manufacturing Excellent Center that opened in spring 2015.

Institutional capacity was expanded in the following ways: strengthening of partnerships, creation of lab space, development of stacked and latticed curriculum, servicing of a new student market, and identification of appropriate instructors for this particular audience.

The project team was able to leverage USDOL funds to secure additional grant funding and institutional resources for the creation of 18,000 square foot *Commercialization and Manufacturing Excellence Center.* This new facility housed the AWAKE program and provided more space for the participants than where the project was previously located. The opening of the facility increased the likelihood of sustainability AWAKE training post DOL funding.

Also, the development of a stacked and latticed curriculum was achieved by establishing a credential at the certificate level. Offering this additional credential was another means by which institutional capacity was expanded. This curriculum created a pathway for participants to continue their education toward an associate's degree at Ivy Tech or a bachelor's degree at Purdue University Northwest. Finally, the project team targeted non-traditional students in the region and recruited additional instructors who had deeper experience working with non-traditional college students. As a result of these components, the AWAKE program expanded its influence and goal of program sustainability over the grant period.

Additional partnerships have been developed to gain insight into industry needs, secure opportunities for placement of program completers, and assist with the sustainability of the program. The AWAKE team partnered with regional entities to effectively implement the project. The potential areas where these resources could be directed are as follows: *Program design* involves all the decisions of inclusion or exclusion of the elements involved in the learning process (e.g., the curriculum, whether or not there's an internship, articulation of the pathway etc.); *Curriculum development* relates to the didactic areas of the course; *Recruitment* is the identification of participants for the program; *Training* refers to the professional development targeted to instructors or when involving participants activities that are not course related; *Placement* involves the hiring of interns or providing actual employment; *Program management* involves the day-to-day operations of the program; *Leveraging resources* is the obtainment of cash or in-kind resources; and *Commitment of Sustainability* refers to the willingness to transition the program from "grant" status to institutionalization of the training program. Appendix E presents each partnering organization and the role that they played within these various areas. Recruitment generally occurred through workforce development systems and military related

organizations. The entities involved in recruitment did not fluctuate much since training began. However, additional workforce development organizations became more involved within the placement of AWAKE completers. On the other hand, most industry partners directed resources solely to placing participants into internships and actual jobs. Indeed, the involvement among industry partners in terms of placement increased over time. For instance, at the end of cohort 5, approximately 10 companies were involved in providing placement, and at the end of cohort 10, that number rose to close to 30. This growth of industry involvement continued throughout the project, raising the number of contributing industry partners to 39. This increase in industry participation occurred in large part by continued outreach by the project team. The reach of the project continued to increase, as an industry survey the project team developed was distributed to 170 individual representatives from companies in the field.

Interestingly, there was low placement occurring within the organizations that served on the advisory committee. While these companies were the only industry partners involved in curriculum development, they were not as involved in placement activities. For instance, at the end of cohort 5, no company of the five companies serving on the advisory committee had placed an AWAKE completer and by the end of cohort 10, only one company had placed an AWAKE completer. In discussions between the project team and the advisory committee, these placements had not occurred because of a need to make structural changes to accommodate participants. For instance, some businesses do not currently offer second and third shift internship opportunities. They were committed to making changes to create these opportunities for participants and did fulfill this commitment. However, there were five (5) different industry partners[8] who did not serve the advisory committee that hired at least three (3) or more employees from AWAKE through the end of cohort 20.

Recruitment

The project team anticipated enrolling 300 unique participants in AWAKE. Through the end of cohort 21, the project served 305 unique participants. An additional cohort was developed because training needs still existed and sufficient time and funds were available to complete an additional cohort. The targeted enrollment per cohort was 15 participants which was set because of the limitation of workspaces available in the classroom. However, the project team increased the enrollment cap to 17 to account for attrition[9]. While this satisfied the

Figure 6. Participants from cohort 9 taking a study break.

[8] These five (5) industry partners are (number of AWAKE completers hired in parentheses): Amstead Rail (10), City of Gary (4), Gelmount Global Solutions (5), Rupari Food Services (5), and ZF Lemforder (3).

[9] While project team is meeting enrollment targets, it should be noted that interest in the program is not oversubscribed at a level that would allow for an experimental design for the impact study.

demand in early cohorts, the average enrollment in the program during cohorts 13-15 was just 13 participants. Despite this decreased initial enrollment for cohorts 13-15, recruitment rebounded from cohort 16 forward.

The project team capitalized on several avenues to recruit individuals for participation in AWAKE. Recruitment for the project occurred through extensive outreach to WorkOne, the regional workforce board, employer partners, regional companies, and military installations. Additionally, the project team created a website and Facebook page as additional recruitment mediums. The AWAKE advisory board also distributed promotional materials within the region.

The project team made a concerted effort to recruit veterans into the project and these efforts resulted in increased participation among veterans across the course of the project. Indeed, of the 305 participants, 63 (21%) self-reported veteran status, a rate higher than the overall rate of veterans in the state of Indiana at 7%.[10] Despite 63 participants self-reporting veterans, only 43 participants completed paperwork to officially be identified as a veteran (see Appendix F for complete demographic information).

More challenging was the recruitment of TAA eligible participants. There were only four AA-eligible participants in the AWAKE program. Low participation is likely a demographic issue and not a recruitment issue. A WorkOne representative indicated that TAA eligible participants were very low because companies have not recently left the region or have not completed the required paperwork that would allow displaced workers to become TAA eligible. In Year 1 of the project, WorkOne anticipated that over the next year or two there will be an increase in TAA workers because of anticipated transitions of two area companies, but this increase did not materialize.

While the overall marketing efforts appear successful, in focus group discussions, participants indicated that an area of improvement for the project was around marketing efforts. Specifically, participants commented on "accidently" learning about the project. For instance, one participant indicated googling for a different program and learning about AWAKE. Many other participants indicated that they learned about the program from a single source such as WorkOne or a friend. Participants suggested using radio announcements or billboards as potential avenues to market the project.

Participant Assessment

Unlike other TAACCCT funded projects, Project: AWAKE had only one plan and sequence of study. As just it was not relevant or practicable to assess participants' interests to determine an appropriate program or course sequence. As a consequence, the project team interprets enrolling in AWAKE as an indication of interest in these fields. As such, the project team maintained an open-

[10] The percentage was calculated by taking the total number of veterans in Indiana which is 476,283, obtained from http://www.va.gov/vetdata/veteran_population.asp and dividing it by the population in Indiana which is 6.6 million individuals, obtained from https://www.google.com/search?q=population+in+indiana&sourceid=ie7&rls=com.microsoft:en-US:IE-Address&ie=&oe=&rlz=1I7WQIB_enUS531&gws_rd=ssl.

enrollment approach to recruiting individuals into the program. However, all potential participants were required to receive a four or higher on the ACT WorkKeys Applied Mathematics portion. The ACT WorkKeys is a job skill assessment system that assists in selection, hiring, training, and development by measuring foundational and soft skills that can be targeted toward institutional needs.[11] The assessment was conducted by the placement and internship coordinator. Is it interesting to note that ACT WorkKeys performance tended to improve by education level.

Participant Performance

Participant performance includes a diversity of topics from classroom attendance to retention in the project, what effective in study learning, performance on certification exams and on-job certification. Each of these components were analyzed to gain a deeper understanding of how to better train this population.

Attendance and retention

For the purposes of this project, the terms "attendance" and "retention" are used interchangeably. A total of 312 individuals initially enrolled in the AWAKE program with 199 completing (67% retention rate). Retention rates varied across cohorts (see Figure 7 the corresponding cohort dates are listed in Appendix G.

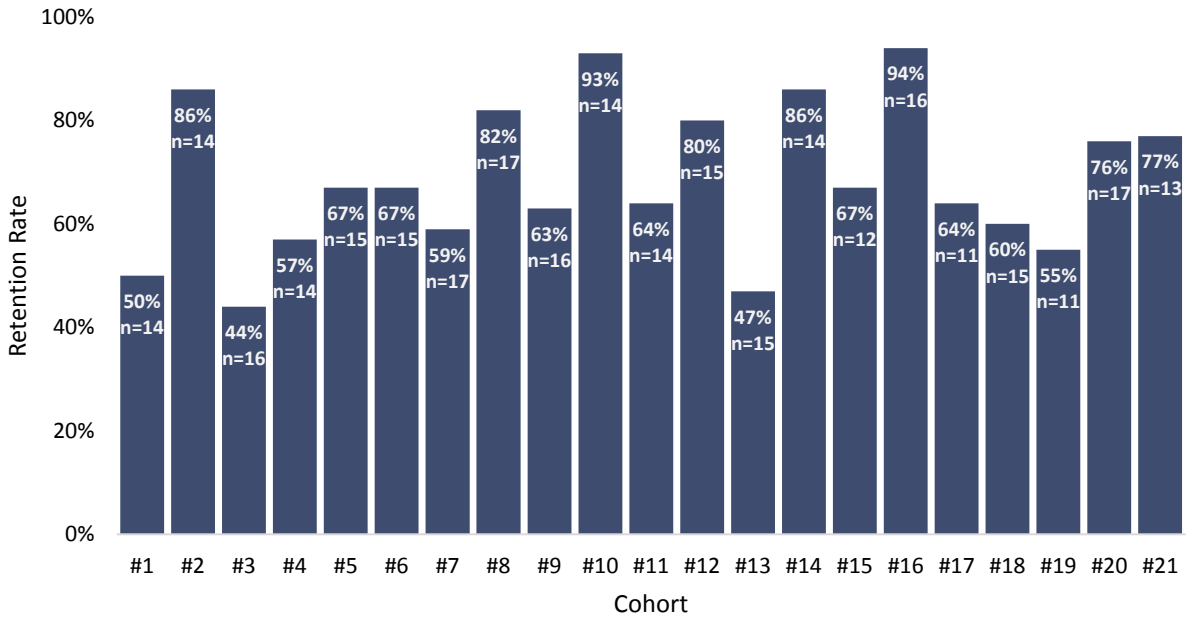

Figure 7. Retention rate for AWAKE participants by cohort (n=305)

[11] For additional information regarding the ACT WorkKeys assessment, follow https://www.act.org/products/workforce-act-workkeys/

Interestingly, the retention was for day classes was lower (57%, n=141) than for night classes (79%, n=164). Incumbent workers were more likely to be enrolled in night classes than for day classes.

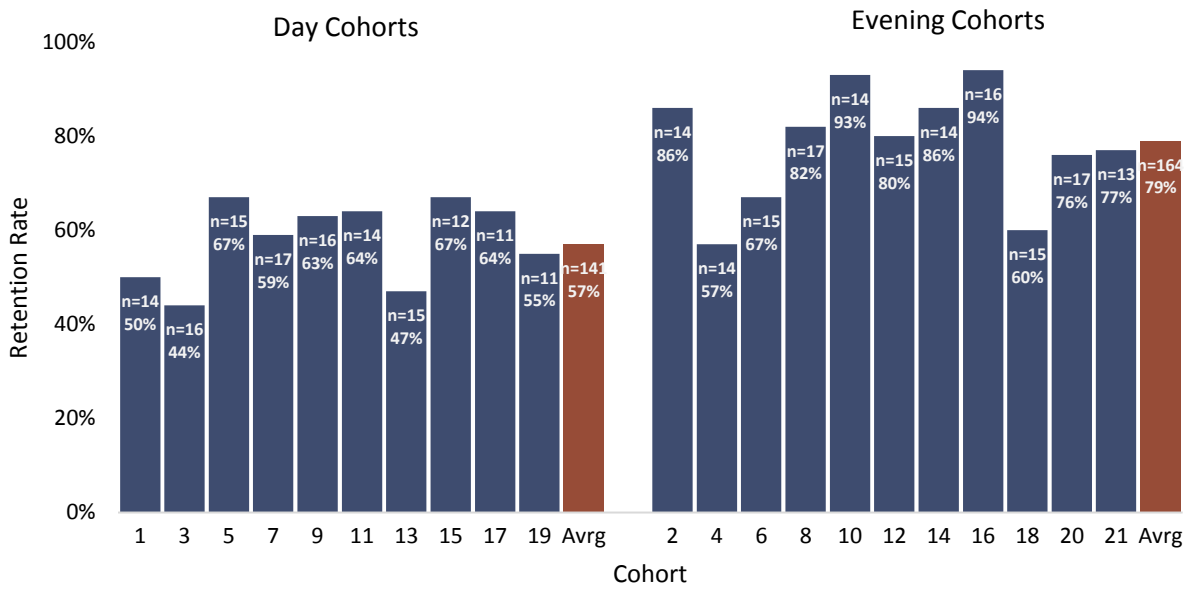

Figure 8. Retention rate for AWAKE participants by day vs. evening cohorts (n=305)

Examination of the attendance records, suggests a steady decline in attendance over the 21 weeks of the training section. The sharpest decline occurred around weeks 12 and 13 (Figure 8). Moreover, most individuals who withdrew did so by week 16. The ability to maintain one's focus and determination over an extended amount of time is, understandably, challenging. However, the primary known reason for participants leaving the program prior to completion is because of a job shift or change in schedule, with 21% (n=22) out of 103 individuals who withdrew reporting this rationale. It is important to highlight that the program is highly intensive with information covered from four different key areas.

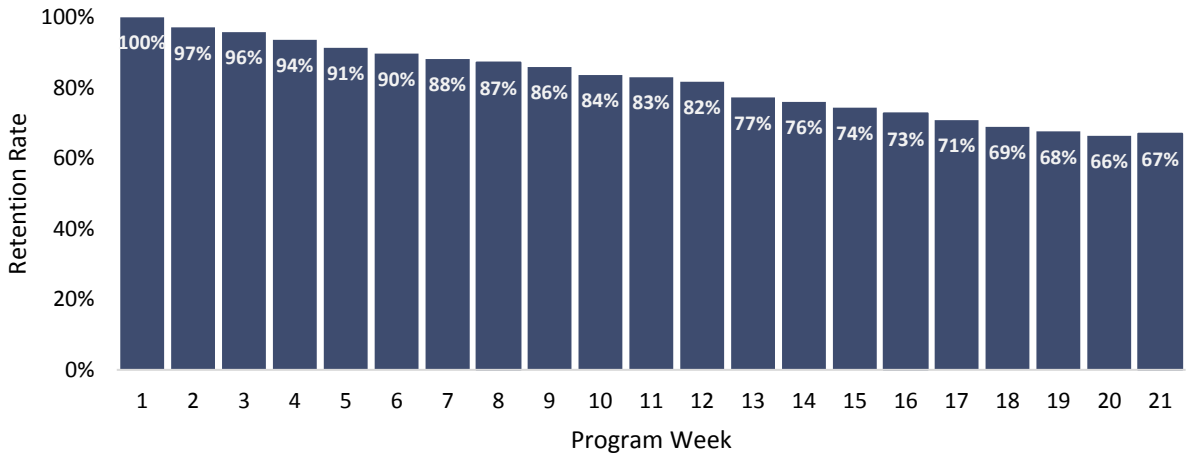

Figure 9. Retention by program week for cohorts #1-21.

With that information as context, there are several factors that appear to influence participants' motivations to complete the program. Foremost, participants indicated that intrinsic factors motivated completion such as a high desire for increased pay, consistent work, and a better work environment. These participants report how valuable this opportunity was. Second, participants reported that the energy and enthusiasm of instructors was highly motivating. Participants reported deep appreciation for the enthusiasm that instructors exhibited. Finally, participants also indicted that testimonials from previous participants and the successful track record for placement as motivating factors as well. As noted earlier in this report, since the second cohort, there have been changes in the sequencing of the modules and pedagogical approaches (discussed in greater detail with subsequent evaluation questions) that may also have made a difference in attendance and retention. Moreover, the project team follow-up with individuals and would create a phone list to encourage peer-to-peer support.

Student Learning

Measuring student learning within the present context is challenging. However, there are three categories of data that can be examined to help elucidate this component: 1) feedback from participants; 2) participation satisfaction with AWAKE; and 3) performance on the PMMI test.

Pedagogical strategies appear to make a difference in participants' learning and resulting success. Early within the project's life, participants provided feedback to the project team regarding the pedagogical approach of instructors whose experience mainly was drawn from working with traditional college students in a university system. Specifically, participants indicated that the content of the materials was too theory-driven, making it difficult to understand. The project team responded by recruiting additional instructors who had deeper experience working with non-traditional college students, and more experience with adult learners. Participants later reported a positive experience of the instructors' pedagogical style. For instance, participants indicated that their instructors' tendencies to use analogies in their instruction helped participants to better grasp concepts. One student from the Mechanical Components course indicated that the *"Instructor's assistant, was an integral element in the*

understanding and development of information, instruction, and ultimately retaining knowledge of my experiences within the lessons." Another student from this module also stated "T*here was more elaborate and detailed, in depth answers to my questions, [as] he made sure I understood the why and how."* Comments from both the Industrial Electricity and PLC modules showed similar impact of instructors' pedagogical strategies. Students left comments such as, *"The instructors taught me to reason through and not just memorize,"* and that the teacher was *"very knowledgeable about the subject of PLCs and electricity, and open to dialogue in class."*

Satisfaction data is also informative regarding learning (Holton, Bates, & Ruona, 2000). The sequence of the modules was changed based on feedback from the first two cohorts. Satisfaction with the program increased after the first cohort and has remained consistently high with a mean of 8, where 0 = "Not at all" and 10 = "Extremely" (also see Figure 9). Participants in all cohorts (1-21) liked the hands-on approach and activities in the course. Additionally, qualitative feedback from participants often included positive feedback regarding the instructors and staff, the learning of new skills applicable to their work or interests, as well as the program format (i.e., class length and class structure).

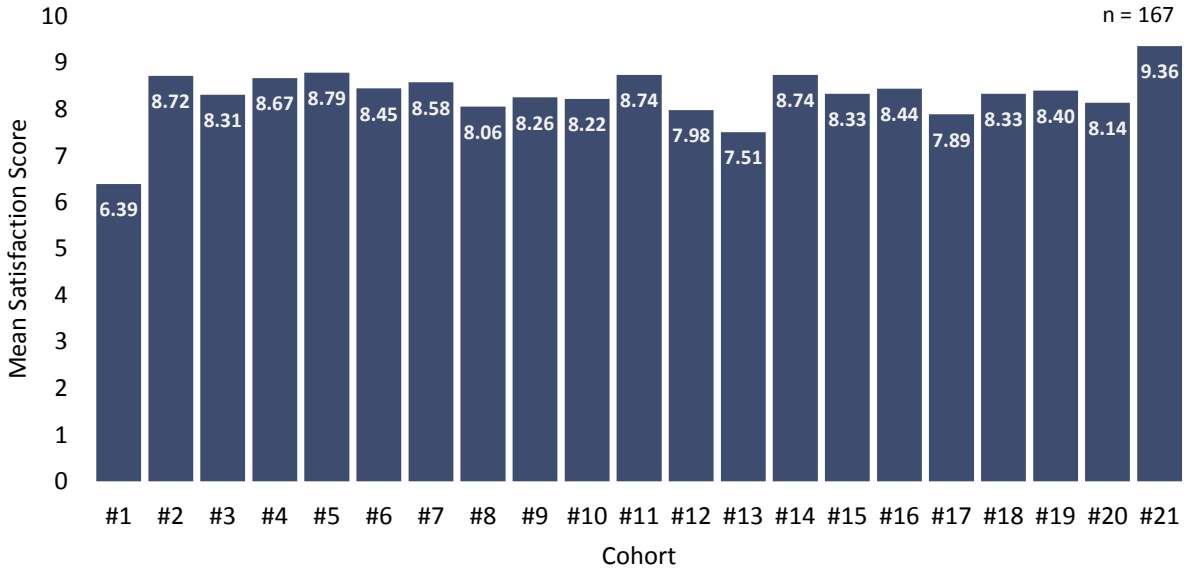

Figure 10. Mean level of satisfaction by cohort (1= very dissatisfied; 10 = very satisfied).

PMMI Testing Results

In regards to the PMMI testing, approximately 299 PMMI certificates have been earned through cohort 21. To receive a certificate, participants much earn a 70% or higher on the test, except with the PLC certificate, which requires participants to earn a 75% or higher on the test. In total, approximately, 828 PMMI certification exams were taken[12], such that approximately 36% of attempts to earn a certificate were successful. PMMI passage rates through cohort 21 are presented in Table 2.

[12] This number was determined by multiplying the number of completers by the number of PMMI tests offered during the AWAKE training.

PMMI Test	# Passed	Passage Rate
Mechanical Components I	178	68%
Industrial Electricity I	62	27%
Industrial Electricity II	40	20%
Programmable Logic Controller (PLC) I	40	20%

Table 2. PMMI test passage rates for cohorts #1-21.

In isolation, the project team interprets these findings as consistent with expectations. Scores from AWAKE participants were compared to those of the general PMMI test-taking participant pool (see Table 3 below). This general pool contains individuals that have at least a bachelor's degree; however, PMMI has not provided a breakdown by education level. Comparison between average scores for AWAKE participants and the general PMMI test-taking participant pool revealed a difference in score of just about 3 points lower for AWAKE participants on the Mechanical Components PMMI certification exam. On the electrical and PLC PMMI exams, AWAKE participants had much lower scores when compared against the general participant pool.

PMMI Test	Average Score - AWAKE	Average Score – General Pool	Difference in Score
Mechanical Components I	73.83	76.99	-3.16
Industrial Electricity I	59.89	75.51	-15.62
Industrial Electricity II	52.81	74.46	-21.65
Programmable Logic Controller (PLC) I	57.29	83.26	-25.97

Table 3. Average PMMI test scores for AWAKE participants and general participant pool.

Feedback from AWAKE participants at the end of the module revealed complaints regarding the time that was allotted for adequate understanding of the material presented in the module. Specifically, participants felt that the tests administered in the program seemed not to reflect what was covered during the course. As a consequence, participants felt as though they were not as prepared for the PMMI tests based on what they had learned. One participant stated that, *"a lot of material we were tested on was not covered in class."* Another participant reported that they *"wish[ed] we had more training time on each of the modules."* Given the fact that most AWAKE participants have minimal experience, their performance seems positive for what was being taught to participants in 4-7 weeks (depending on the course). One challenge with the PMMI test was that preparing for the test takes time away from the hands-on experience. There was a constant challenge between providing participants with the instruction to perform well on the test and providing sufficient time for experiential learning. As a consequence, performance on PMMI tests tended to improve by education level (see Figure 10 below).

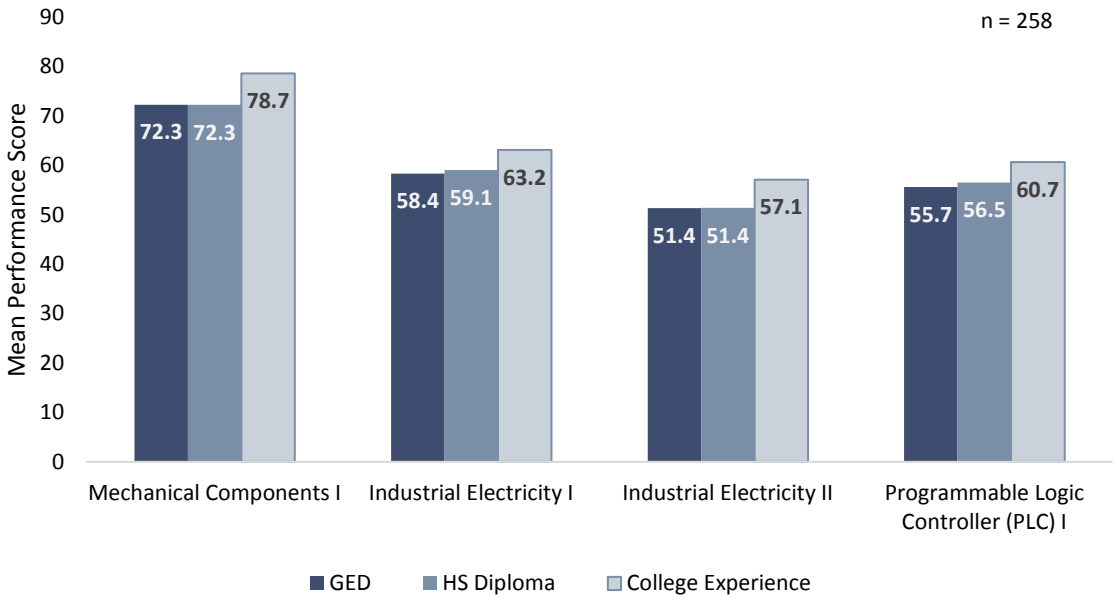

Figure 11. Mean performance level on PMMI tests by education level.

Job Placement

Overall, participants completing the AWAKE program are obtaining skills that are valuable to industry. One-on-one interviews with selected industry representatives indicated that the willingness for individuals to complete the AWAKE program made them competitive applicants for employment positions. Interviews with industry representatives also suggested that participants were indeed more marketable by completing Project: AWAKE. For instance, industry representatives indicated that participation in AWAKE communicated interest in a particular type of work translating into increased competitiveness of participants' applications. Placing individuals seems to be a matter of timing and not perceived quality of the participants. Representatives indicated that by completing the training participants are communicating interest in the field and overall professional dedication.

Feedback from employers, who regularly place individuals, indicated a desire for modifications in the program to work more closely to meet the needs of industry. Other employers expressed a desire to have a more expansive training in a specific skill (i.e., more mechanical or electrical skills). Participant comments aligned with this desire in having a preference for one area of interest in the program over another. Industry representatives emphasized differences in specific skills necessary for their company needs. One representative suggested that the project leaders should work to more closely align the AWAKE training to companies' needs that offer significant placement opportunities.

It was expected that 150 unemployed workers would obtain employment after participating in AWAKE, however, there were not enough unemployed workers enrolled in AWAKE to achieve this objective. Of the 305 participants, only 138 (458%) were unemployed. According to project IDWD data, nearly half of these participants (n=62) received employment after completing the AWAKE program.

Displaced project completers in cohorts 1 – 3 received 100% placement for internships or full-time job offer; however, the number of internship or full-time job offers decreased to 63% in subsequent cohorts. One reasons for this trend could be because of saturation of placements within in companies with AWAKE participants. In response to this trend, the project team held an event in which over 100 companies were invited, with approximately 20 companies sending representatives, who have not placed participants in an internship or job were invited to visit the Commercialization Center to learn more about the Project: AWAKE towards identifying new sites for placement. Interestingly, there were a handful of participants who completed the training component of the project and were placed in an internship but did not show-up as committed. The tendency for "no-shows" does not seem to be attributed to the emergence of another job opportunity. While these are individual cases, this could have impacted on future internship and fulltime placement opportunities for other AWAKE participants.

Continuation of Educational Experiences

The articulation agreements were outlined by Purdue University Northwest at the beginning of the project in fall 2013. Essentially, the agreement stipulated that participants who complete the AWAKE training and passed the mechanical, electrical I & II, and/or PLC PMMI test, would receive course credit for corresponding courses at Ivy Tech. Agreement by Ivy Tech to this outline was not achieved until summer 2015. However, despite continuous efforts by the project team, the articulation agreements were never fully finalized. The delay in formalization was due to Ivy Tech requirement for a system-wide articulation agreement (e.g., for the entire state) and not just with the regional institutional (e.g., for one campus) as originally proposed in East Chicago (Indiana) and Valparaiso (Indiana). This topic is discussed in additional detail in the next section.

Sustainability

The project team made a concerted effort to reach out to other similarly sized TAACCCT funded projects to glean best practices and lessons learned. The primary lesson that the AWAKE team gathered from these interactions regarded the importance of engaging in an aggressive recruitment strategy such as ensuring involvement from WorkOne and other workforce development entities, employers and industry partners. Additionally, to reach veterans the team also reached out to the armory and military instillations and attended two military "stand down" events, although veterans were reluctant to participate. The project team also had opportunities to promote the AWAKE program.

The project team took key actions to ensure the sustainability of the AWAKE training and equipment after DOL funding has ended. First, components of the AWAKE training are being institutionalized through the opening of the Commercialization Center which was discussed earlier in this report. With the opening of this center, the AWAKE training components have a permanent home. Second, the project's PI and Co-PIs won a contract from The Center of Workforce Innovations, Inc., a regional provider of adult learning opportunities, for a contract to provide Mechanical and Electrical Maintenance Technician training. The proposed training was near identical to the training offered through the AWAKE training. Because the contract was awarded, it set a precedence of individuals similar to participants of the Project: AWAKE program to receive training within the region on a contract

basis. Additionally, AWAKE is working with the College of Technology and the Center for Innovation through Visualization and Simulation at PNW to create mobile units of the training program. This format will allow the training to travel around the state to provide a hybrid learning opportunity. Participants will learn the classroom portions on-line (i.e., virtual training) and the mobile units will arrive in designated areas to allow participants to gain the needed hands-on experience.

Additionally, the project team leveraged ATE Central's Sustainability Services database that has resources focusing on practices to assist with project growth after the grant funding period is completed. A few relevant aspects identified to promote sustainability are the establishment of strategic partnerships, marketing of the project, and building of project capacity[13]. As previously noted, Project: AWAKE has been successful in highlighting these components throughout the life of the project. Partnerships with industry have continued to grow during the project, while the number of companies employing multiple AWAKE completers is increasing. The performance of AWAKE participant completers in industry placements will also be important to assist with strengthening industry relationships and promoting the project's sustainable future. Finally, various building, curriculum, and academic pathway improvements have occurred throughout the project to meet the needs of both industry and potential participants.

[13] For more information regarding sustainability services follow: https://atecentral.net/sustainability.

Section IV: Outcomes Study Findings

The overarching questions of the outcome study were: *To what extent did Project: AWAKE increase workers' employment?* and *To what extent did Project: AWAKE impact on workers' earnings?* Towards addressing those questions, across the four rounds of TAACCCT funding, the USDOL required funded projects to gather data around nine outcome measures. Ideally, the implementation of an impact study would more directly answer these questions, however, as noted earlier in the report completing the impact study was not feasible. Attempts to put the findings in context were made by examining national data as available as well as folding in additional analyses that were informed by the implementation study.[14] Because implementing an impact study was not feasible, directly answering these questions and making a causal interpretation is not possible. However, attempts to put the findings in context by examining national and state level data were completed. The findings from these outcome measures for Project: AWAKE are summarized below. A discussion on the context for each of the outcome measures are discussed.

Outcome Measure and Definition	Goal	Actual
1. *Total unique participants served:* Cumulative total number of individuals entering any of the grant-funded programs offered.	300	305
2. *Total who have completed a grant-funded program of study:* Number of unique participants having earned all of the credit hours for the award of a degree or certificate in any grant-funded program.	300	199
3. *Total number still retained in their program of study (or other grant-funded programs):* Number of unique participants who did not complete and are still enrolled in a grant-funded program of study.	120	0[15]
4. *Total number of students completing credit hours:* Total number of students enrolled that have completed any number of credit hours to date.	300	0[16]
5. *Total number of participants earning credentials:* Total number of participants completing degrees and certificates in grant-funded programs of study.	300	185
6. *Total number pursuing further education after program of study completion:* Total number of students who complete a grant-funded program of study and enter another program of study, grant-funded or not	25	28
7. *Total number employed after program of study completion:* Total number of participants (non-incumbent workers) who complete a grant-funded program of study who are employed during the quarter after the quarter of program exit.	150	62[17]
8. *Total number 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 quarter of program of exit who retain employment in the second and third quarters after program exit.	120	51[17]

[14] The exploration of additional analyses were limited because of time constraints due to the third-party evaluator receiving state wage data in mid-September 2017.

[15] Because of the nature of Project: AWAKE and the definition of "retained in program", at project end no participants would be retained in the program and therefore, the original goal should have been set at zero.

[16] Project: AWAKE did not offer credit hours and therefore the goal should have been set at zero.

[17] Wage data were obtained for two-thirds of the participants. Consistently, findings for the outcome measures related to wage data are based on two-thirds of the participants.

Outcome Measure and Definition	Goal	Actual
9. *Total number of those participants employed at enrollment (incumbent workers) who receive a wage increase post-enrollment:* Total number of students who are incumbent workers (i.e., employed at enrollment) and who enrolled in a grant-funded program of study who received an increase in wages after enrollment).	75	8[16]

Table 4. Project: AWAKE outcomes on the DOL required performance measures.

Unique Participants Served

Project leaders anticipated that 300 unique individuals would be served through 20 cohorts. The project was able to serve 305 unique individuals over 21 cohorts (Outcome measure #1; see Appendix F). Participants were primarily male (88%). However, there was diversity in the racial composition of participants. Most participants had a high school diploma (56%), while about a quarter of participants had some college education. About 17% of participants had a GED.

Results from the implementation analyses indicated that participants with a GED were retained in the program at a slightly higher level when additional support services were provided (Cohorts 9 -21) than when they were not (for Cohorts 1 – 8). As such, an ANOVA was completed to determine if the wages differed among education level, however, no significant difference emerged.

Completion and retention

Of the 305 individuals who were served, 199 completed the program with a completion rate of 65% (Outcome measure #2). While this completion rate is above the national average for individuals completing community college, which is at 23% (Kraemer, 2013), it is below the projected completion rate of 100%. That is, it was projected that 300 participants would complete the program. The project team assumed that because the training was free and provided over a relatively brief period of time (20 weeks versus two or four years), that all participants who started would complete.

The project team projected that 120 individuals who would not complete Project: AWAKE but who would be retained in a grant-funded program of study (Outcome measure #3). During proposal development “retained” was interpreted as the individuals who did not complete the project who had the potential to return to the project on an on-going basis. As such, because of the nature of the project, it is not possible to be retained at the end of the project and therefore, the original goal should have been zero.

In an attempt to understand the difference Project: AWAKE had on wages, the wages of individuals who completed the program were compared against those who had not completed the program and did not earn a certificate. No significant differences emerged between these two groups.

Credit Hours and Credential Earned

Outcome measures related to credit hours and credentials earned were also a key outcome measures. It was projected that 120 participants would complete credit hours (Outcome measure #4). Because the Project: AWAKE program is not a credit-bearing program, the goal should have been zero. As such, obtainment of this goal was not possible. Each participant had the opportunity to earn up to four stackable and latticed industry certificates. The projection for this measure was essentially achieved. The project expected that 300 participants would earn a credentials in the form of certificates. In total, 185 individuals earned 299 certificates.

Continuation of Educational Experiences

Based on data obtained from the National Student Clearinghouse, 28 participants pursued further education after completing Project: AWAKE (Outcome measure #6). Without having the data from the National Student Clearinghouse, the number of students who continued their education would have been grossly underestimated. The project team disseminated surveys to former participants to gather key post-completion data. Based on those findings, only six participants had indicated continuing their education.

The project team projected that 25 participants would continue their education. In the absence of finalized articulation agreements, it would be expected that this goal would not be achieved. However, based on data obtained through the National Student Clearinghouse, 28 participants attended two-year or four-year institution following Project: AWAKE participation (see Table 5).

Institution	# of AWAKE former participants attending
Ivy Tech	17
Purdue University Northwest (Calumet)	3
Prairie State College	2
Calumet College of St. Joseph	1
City Colleges of Chicago	1
DeVry	1
Indiana Wesleyan	1
Illinois Institute of Technology	1
University of Phoenix	1
Total	**28**

Table 5. Institutions where former AWAKE participants continued their education.

Non-incumbent and incumbent employment

Overall, participants for whom wage data were available, earned on average $6,697 for the two quarters after completion. Participants who were incumbent workers at project start earned on average, $8,050 and participants who were non-incumbent workers at project start earned on average $4,861, for the same timeframe.

There are three outcome measures related to non-incumbent and incumbent workers who participated in Project: AWAKE. The project team projected that 150 non-incumbent workers would be employed after completing Project: AWAKE (Outcome measure #7). Because there were only 138 non-incumbent workers who participated in Project: AWAKE overall, achieving this objective would not have been possible. According to IDWD data, 62 (45%) non-incumbent workers who completed Project: AWAKE were employed the quarter after the quarter of project exit. That finding is on par with self-report data which indicated the 70 (51%) non-incumbent workers were employed during that same timeframe. Moreover, data obtained from IDWD indicates that 51 non-incumbent Project: AWAKE completers were later retained in employment representing 37% of all non-incumbent workers and 82% of non-incumbent workers who were employed (Outcome measure #8).

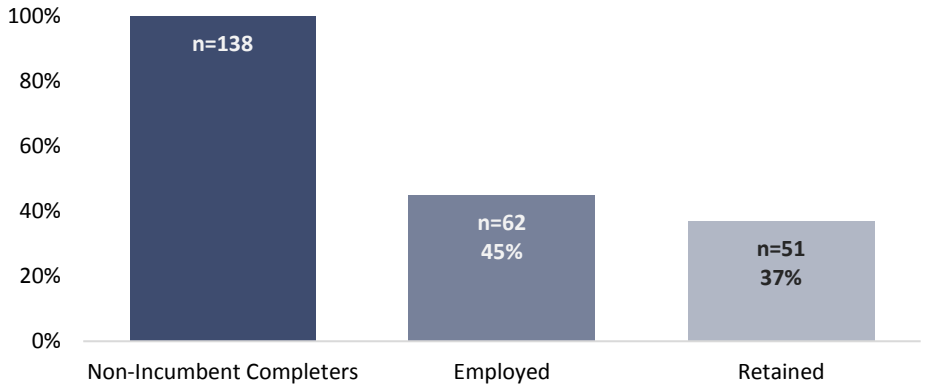

Figure 12. Non-Incumbent Program Completers who gained and retained employment

Interestingly, self-reported data indicated that only 13 individuals were retained in employment. There were only a small percentage of incumbent workers who provided wage data at project start and wage data were also available for the applicable timeframe. Based on available data there were eight incumbent workers of 12 who received an increase in wages (Outcome measure #9).[18]

[18] Wage data were obtained in mid-September 2017 at which time it was determined that an additional wage request was needed.

Section V: Conclusions

Overall, the project was effectively implemented, meeting most of the project participant outcome measures. All activities to effectively deliver Project: AWAKE were implemented within the projected timeframe. This includes, purchasing equipment, establishing labs, modifying modules, and hiring instructors. The participant outcome measures that were not achieved were most often attributable to a misinterpretation of the definition of the outcome measure and would not by definition have been possible to achieve.

While the questions to the outcome study were not able to be fully addressed, the findings from Project: AWAKE makes important contributions to research on workforce development as well as illuminates additional areas for possible research. These topics are summarized below.

Project Retention

Maintaining relatively high levels of retention in a relatively short training program is challenging. The low retention levels among community college students is well documented. While retention for AWAKE was overall higher than the community college retention rate, Project: AWAKE's retention was lower than would was expected as set by the goal for the related outcome measure. Admittedly, a 100% retention may have been on the high side, but considering the program was only 21 weeks retention would have been expected to be slightly higher. Adjusting for the fact that nearly 21% of the participants did not complete because of earning employment, the retention rate increases from 66% to 71%.

Tension between hands-on training and traditional course instruction

A challenge emerged between focusing on hands-on training and preparing participants for the certification exam. With limited instruction time, sufficient time for both components could not occur. The instructors and project team emphasized the importance of the hands-on component. However, because of the nature of testing, participants were motivated to earn a certificate and reported being deflated when this did not occur. This issue is important because of the national focus on equipping workers with certificate credentials.

Offering Wrap-around services

Wrap around services may have greater impact for participants with a high school equivalent degree (GED and high school diploma) than for participants with some college experience (comparing participants from cohorts 1 – 8 and cohorts 9 – 21). Additional analyses indicated that there was not a difference in wages across cohorts, suggesting the wrap around services likely made a difference on retention and not on the amount of the wage. It is unclear as to why this pattern emerge, however, there is a growing body of research suggesting that at-risk students need additional academic support. The findings from Project: AWAKE are consistent with these broader emerging findings.

On-the job training

An interesting finding that emerged from this work, is that nearly 89% of individuals who reported obtaining new employment, did so after completing on the job training. This finding may provide insight into the pipeline for displaced workers securing new employment opportunities.

Implication to Workforce Development Research

Surprisingly, self-reported data from participants underrepresented the outcome of pursuing further educational opportunities. The project team disseminated several surveys to obtain self-reported data related to wages and pursuit of educational opportunities. Results from these efforts indicated that six individuals continued their education. Later proprietary data revealed that 28 individuals had actually continued their education, much higher than the six originally identified. This finding is important to workforce development researchers that self-reported data may underrepresent the outcome and not over represent as one may predict.

One reason that job placements were slightly lower than projected was due to a relatively large percentage of participants who did not show-up to placement opportunities. This occurrence was surprising particularly because it emerged among participants who completed the AWAKE training. There is an understanding that workers may need additional support related to overall career counseling, as additional attention should also be focused on eliminating self-sabotaging behaviors. Additional research into the nature of an intervention of this nature needs to occur.

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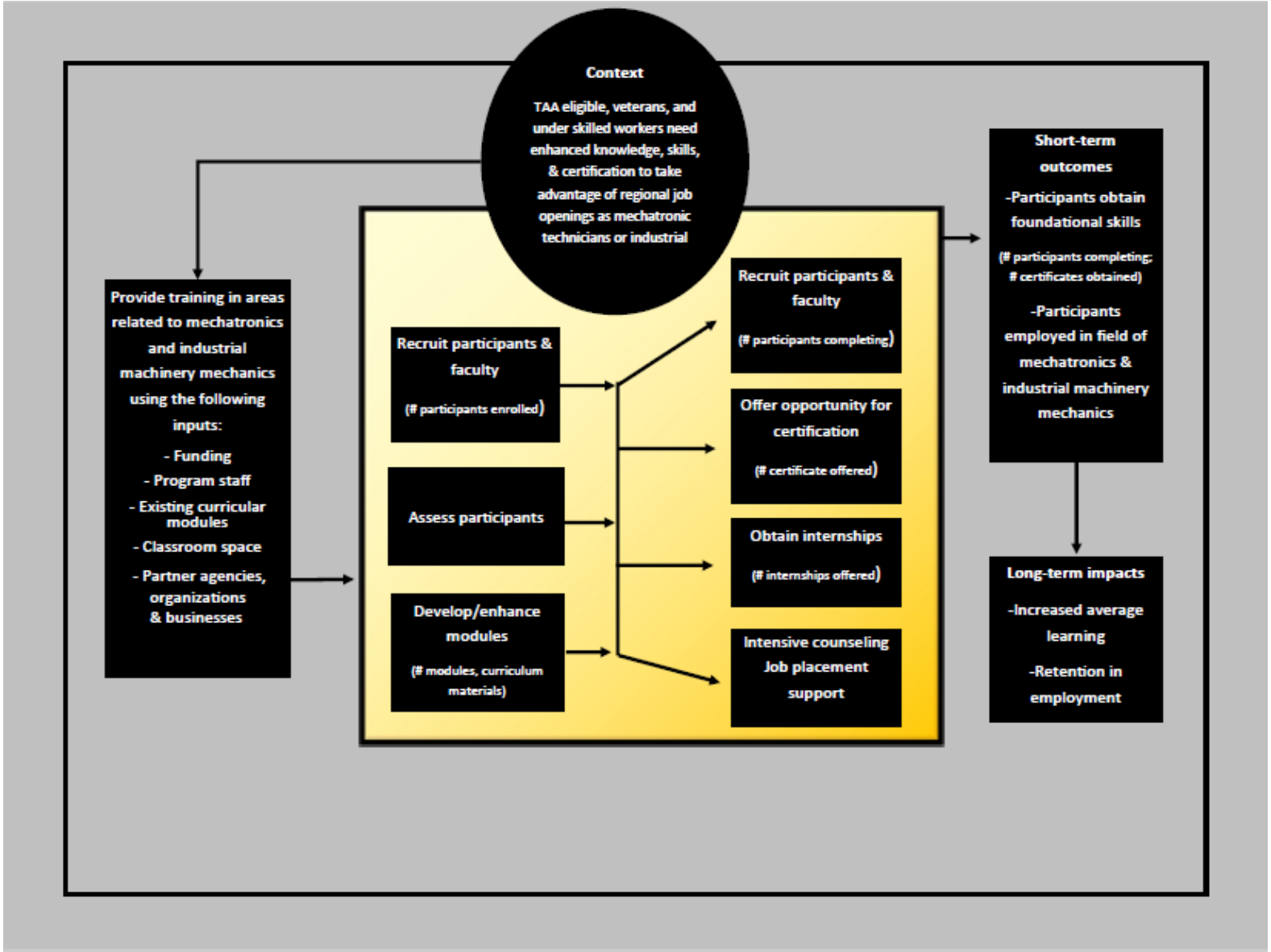
Appendix A – AWAKE Logic Model



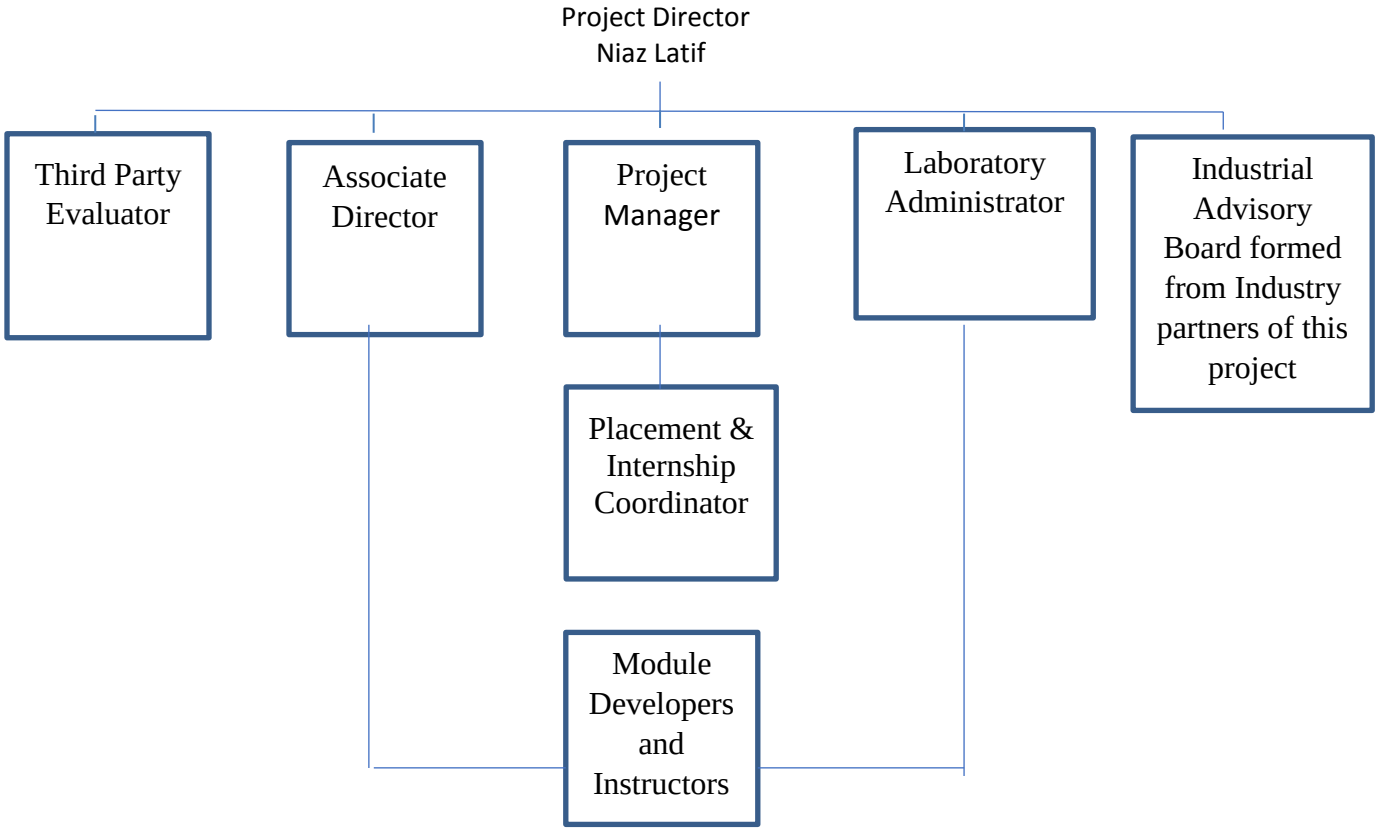
Appendix B: Questions and Related Data Sources

Research Questions	Data Sources				
	Site visits	Document Review	Focus Groups & Interview	Surveys	PMMI tests
The Interventions					
1. How was the particular curriculum selected, used, or created?	✓	✓	✓		
2. How were programs and program design 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?	✓	✓	✓		
Capacity Building					
3. Did the grantees conduct an in-depth assessment of participants' abilities, skills and interests to select participants into the grant programs? What assessment tools and process were used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided and if so, through what methods?	✓	✓	✓	✓	
4. 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 1) program design, 2) curriculum development, 3) recruitment, 4) training, 5) placement, 6) program management, 7) leveraging of resources, and 8) 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?	✓	✓	✓		
5. How was institutional capacity expanded?	✓	✓	✓		
Recruitment					
6. How effective are the recruitment activities in recruiting participants? TAA-eligible participants? Veteran participants?	✓	✓	✓	✓	
7. If enrollment levels are not achieved, how are recruitment activities modified to attract additional participants?	✓	✓	✓		
Participant Performance					
8. What strategies are effective in increasing attendance and retention rates?	✓	✓	✓	✓	✓
9. How are pedagogical strategies impacting students' learning?	✓	✓	✓	✓	✓
10. Is industry providing internships and hiring participant completers?	✓	✓			
11. Are participants obtaining skills needed by industry (i.e., are participants more marketable)?	✓	✓	✓		
12. Are students continuing their educational experience at Ivy Tech?	✓	✓	✓	✓	✓
Sustainability					
13. How are best practices from other TAACCCT DOL programs being incorporated into the AWAKE program?		✓	✓		
14. What are the efforts towards sustaining AWAKE after the grant funding period?	✓	✓	✓		

Appendix C: Outcomes/Impact Analysis Research Questions

1. How many unique participants did the grant serve (total unique participants served)?
2. How many participants completed a grant-funded program of study (total number of participants who have completed a grant-funded program of study)?
3. How many participants were retained in their program of study or another TAACCCT grant-funded program of study (total number of participants still retained in their programs of study or other TAACCCT grant-funded programs)?
4. How many participants have completed credit hours (total number of participants completing credit hours)?
5. How many participants earned credentials (total number of participants earning credentials)?
6. How many participants enrolled in further education (total number of participants pursuing further education after program of study completion)?
7. How many participants employed after program of study was completed (total number of participants employed after TAACCCT-funded program of study completion)?
8. How many participants were retained in employment after program of study was completed (total number of participants retained in employed after program of study completion)?
9. How many of the AWAKE participants who were incumbent workers received a wage increase post-enrollment (total number of those participants employed at enrollment who received a wage increase post-enrollment)?
10. What were the average wages at the time of enrollment and one quarter after program completion?

Appendix D: Project Organizational Management Chart



Appendix E – Overview of Partnership Involvement (greyed areas indicates involvement) as of May 2017

	Program Development Areas							
Partner	Program Design	Curriculum Development	Recruitment	Training	Placement	Program Management	Leveraging Resources	Commitment to Program Sustainability
Employer								
ArcelorMittal								
Akers Packaging								
All State Machine Repair								
Armstead Rail								
APACKS								
Automation & Controls								
B&R Industrial Automation								
Behr								
Cargill								
CEC Controls								
City of Gary								
Crane Masters								
Crown North America								
Glemount Global Solutions								
Hammond Machine Works								
Hoist Liftruck								
Huhtamaki								
Land-O-Frost								
Morrison								
NRD HVAC								
Resco								
Rupari Food Services								
Southlake Automation								
Sullair								

	Program Development Areas							
Partner	Program Design	Curriculum Development	Recruitment	Training	Placement	Program Management	Leveraging Resources	Commitment to Program Sustainability
Tri-State Industries								
Tronics America, Inc.								
UGN								
Winpak								
Wynright								
ZF Chassis								
ZF Lemforder								
Workforce System								
Adecco USA								
Aerotek								
Center for Workforce Innovation								
Davis Staffing								
Kelly Services								
Sedona Staffing								
Staff Source								
WorkOne								
Other Training and Educational Institutions								
Ivy Tech								
PMMI								
SME								

Appendix F – Demographic Data for Cohorts 1 – 21

	Respondents	Percentage
Gender	**#**	**%**
Female	27	9%
Male	268	88%
Unspecified	10	3%
	305	100%
Race	**#**	**%**
African American / Black	113	37%
American Indians / Alaskan Natives	5	2%
Whites	131	43%
Asian	1	<1%
Unspecified	55	18%
	305	100%
Marital Status	**#**	**%**
Single	194	64%
Married	92	30%
Unspecified	19	6%
	305	100%
Number of Minors in Household	**#**	**%**
0 Minors	161	59%
1 Minor	39	14%
2 Minors	31	11%
3 Minors	17	6%
4 Minors	14	5%
5 Minors	8	3%
6 Minors	3	1%
7 Minors	1	<1%
Unspecified	30	10%
	305	100%
Education	**#**	**%**
GED Only	52	17%
High School Diploma Only	170	56%
Some College Experience	80	27%
Unspecified	2	2%
	305	100%

	Respondents	Percentage
County	**#**	**%**
Lake County	225	74%
Cook County	25	8%
Butler County	1	<1%
Boone County	1	<1%
Porter County	17	6%
LaSalle County	1	<1%
LaPorte County	6	2%
Unspecified	28	9.2%
	305	100%
Military Service	**#**	**%**
Have NOT served in the military	242	79%
Have served in the military	63	21%
	305	100%
U.S Navy	10	3%
National Guard	1	<1%
Indiana National Guard	2	1%
U.S. Army	32	10%
Army Reserves	2	1%
Army National Guard	4	1%
U.S. Marine Corp	6	2%
U.S. Air Force	3	1%
U.S. Air Force Reserves	1	<1%
Disability	**#**	**%**
Has a disability	1	<1%
Does NOT have a disability	287	94%
Unspecified	17	6%
	305	100%
Employment Status	**#**	**%**
NOT employed	138	45%
Employed part-time	52	17%
Employed full-time	112	37%
Unspecified	3	1%
	305	100%
TAA Eligibility	**#**	**%**
NOT TAA Eligible	43	14%

Do not know	203	67%
TAA Eligible	4	1%
Unspecified	55	18%
	305	100%

Appendix G: Overview of Session Dates and Completion Rates by Cohort

Cohort	Session Dates	Completion Rate
#1	May 19, 2014 – Oct 9, 2014	47% (n=7)
#2	Jun 16, 2014 – Nov 6, 2014	80% (n=12)
#3	Aug 11, 2014 – Jan 15, 2015	43% (n=7)
#4	Sep 15, 2014 – Feb 19, 2015	53% (n=8)
#5	Oct 13, 2014 – Mar 19, 2015	67% (n=10)
#6	Dec 8, 2014 – May 14, 2015	67% (n=10)
#7	Jan 20, 2015 – Jun 11, 2015	59% (n=10)
#8	Feb 16, 2015 – July 9, 2015	82% (n=14)
#9	Mar 16, 2015 – Aug 6, 2015	62% (n=10)
#10	Apr 13, 2015 – Sep 3, 2015	81% (n=13)
#11	Jun 1, 2015 – Oct 22, 2015	60% (n=9)
#12	Jun 29, 2015 – Nov 16, 2015	86% (n=12)
#13	Jul 27, 2015 – Dec 17, 2015	53% (n=7)
#14	Aug 24, 2015 – Jan 28, 2016	86% (n=12)
#15	Sep 21, 2015 – Mar 1, 2016	67% (n=8)
#16	Oct 19, 2015 – Mar 24, 2016	94% (n=15)
#17	Nov 16, 2015 – Apr 21, 2016	64% (n=7)
#18	Jan 11, 2016 – June 2, 2016	56% (n=9)
#19	Feb 8, 2016 – June 30, 2016	67% (n=6)
#20	Mar 7, 2016 – Jul 28, 2016	76% (n=13)
#21	May 23, 2016 – Oct 13, 2016	77% (n=10)