

Evaluation of Richland College's Veterans-Focused Engineering Technology Project

Interim Report #1

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Michelle Van Noy, Ph.D.**

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RUTGERS

Education and Employment
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**EVALUATION OF
RICHLAND COLLEGE'S
VETERANS-FOCUSED ENGINEERING TECHNOLOGY PROJECT (VFETP)**

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INTRODUCTION

Manufacturing and electronics jobs are making a comeback in Dallas, Texas. After a period of instability caused by increasing globalization, outsourcing, and economic downturn, the manufacturing and electronics industries are currently experiencing a tight labor market, with employers unable to locate qualified prospects to fill available jobs. In response to this need, Richland College's Veterans-Focused Engineering Technology Project (VFETP) aims to prepare students for immediate entry into manufacturing and electronics jobs. VFETP is funded by the U.S. Department of Labor's Trade Adjustment Assistance Community College Career and Training (TAACCCT) grant program, which sought to strengthen community colleges' ability to meet workforce needs by "creating industry-driven strategies that are responsive to regional labor markets and state economies" (U.S. DOL, 2014). To this end, the VFETP grant expands the college's program offerings in advanced manufacturing and electronics through a comprehensive set of reforms, including changes to the physical space and equipment of the programs, reforms and expansions to the curricula, student support services and advising, and the engagement of local employers.

The Education and Employment Research Center (EERC) at Rutgers, The State University of New Jersey is working with Richland College to conduct a comprehensive evaluation of the VFETP grant. The evaluation examines the multiple strategies that Richland is implementing to promote and develop career pathways in its Advanced Manufacturing and Electronics programs and to build partnerships with key outside stakeholders. The evaluation utilizes a mixed-methods approach to gather data from multiple perspectives on grant implementation and outcomes. Throughout the life of the project, the evaluation examines the college's implementation activities, focusing on key issues related to the college's implementation of curriculum development and reform, program design and administration, student assessment, and partnership expansion. In addition, the evaluation studies the use of new equipment and laboratory space to examine its influence on instruction and learning; the strategies used for employer engagement and their relationship to labor market alignment; and the implementation lessons with the project's approaches to create stackable credentials and adopt industry certification processes.

This report is the first of three evaluation reports. The report discusses the implementation of grant activities and seeks to identify promising practices and areas for improvement. Future reports will discuss ongoing implementation activities, as well as quasi-experimental analyses of student outcomes. This report begins with a section that describes the methods used in the evaluation, followed by a section on the background and context of the grant activities. We then provide an overview of student enrollments and completions. Subsequent sections of the report are organized around key implementation activities from the program logic model as follows: First, we discuss curriculum and equipment. Then we discuss the Navigator and student recruitment. Finally, we discuss employer engagement and coordination with the public workforce system. The report concludes with recommendations for implementation improvement and a discussion of next steps for the evaluation.

EVALUATION METHODS

EERC's implementation analysis of the VFETP program is based on a program logic model that the EERC and Richland teams built collaboratively in July and August of 2015. Its design was revisited in December of 2015 and April of 2016 with the Program Director and confirmed to remain the operating logic of the program. The logic model for the evaluation summarizes how the program's planned work (program inputs and activities) will lead to its intended results (outputs, outcomes, and impacts). This ensures that all stakeholders, including the evaluators, are focused on the same roadmap and have a shared understanding of the detailed plan and goals of the project. The logic model is included in the Appendix.

EERC's implementation analysis of the VFETP program in years 1 and 2 focused on program inputs and the implementation of key grant activities. This report includes information amassed via the following data collection processes:

(1) Site visits to the college. EERC conducted one early informational visit (July 2015) and two formal site visits (August 2015 and April 2016) to Richland College. During the two site visits, EERC evaluators collected information from multiple stakeholders involved in the project, including 15 semi-structured interviews with program staff and faculty involved in the grant and two student focus groups. In addition, evaluators toured the physical facilities, including laboratories and classrooms in the new Technology, Engineering, and Advanced Manufacturing (TEAM) Center at Wichita Hall both as they were in development and after completion and observed classes in both the manufacturing and electronics certificate programs.

(2) Telephone meetings and interviews with project leads. To understand ongoing program implementation efforts, EERC conducted monthly informal check-in meetings with project leads via telephone and additional formal semi-structured interviews to assess early implementation progress in December 2015.

(3) Document review. Throughout this first data collection period, EERC evaluators have collected documents and reviewed the Engineering Technology website (information included program descriptions and requirements, course requirements, course outlines, planning documents, meeting minutes, and other informative documents).

(4) Participant observation. EERC participated in one in-person meeting of the Employer Advisory Committee (EAC) and observed the committee's quarterly phone calls.

(5) Student survey pilot. In the final weeks of the spring 2016 semester, first-semester Engineering Technology students were given a survey via email to assess their experiences and satisfaction with the programs, as well as their career awareness, preparation, and aspirations. A second survey was given to students completing the program by the Navigator via email. Four first-session students responded and one

graduate responded. Both surveys were distributed online via Qualtrics, and the dissemination experience and initial results will be used to hone the survey for broader distribution in the fall of 2016 and spring of 2017.

EERC staff analyzed all data collected using established analysis techniques. Qualitative data were managed, coded, and analyzed using qualitative analysis software, NVIVO 10.

BACKGROUND AND CONTEXT

In this section, we discuss several aspects of the grant that provide background for the major activities of the grant. First, we discuss the labor market needs that motivated the need for the grant activities. We then discuss the specific grant activities detailed in the proposal as ways to respond to these labor market needs. Finally, we discuss the organizational structures that the college established to carry out the grant activities.

Labor Market Need

The manufacturing industry has changed significantly in recent decades.

Manufacturing, which has seen a steady decline in employment share over the decades since World War II¹, is experiencing a resurgence through glimmers of reshoring, which is recovering jobs lost to globalization, and specialization into more complex middle-skill work in advanced manufacturing and electronics.

Despite the popular notion that manufacturing jobs have all moved to other countries, manufacturing remains a significant industry. In the Dallas metropolitan area, as in the U.S. at large, nearly one in ten workers is employed in the manufacturing industry². However, these jobs are different in many respects from traditional manufacturing jobs. Today's manufacturing jobs often require higher levels of skills and training and rely more on advanced technology, in contrast to traditional factory work. Even with the resurgence of the advanced manufacturing industry in the U.S. (and particularly in the Dallas area), the drawback has been the cyclical nature of the industry. Large employers have had expansions and contractions in their workforce to correspond with economic fluctuations. Texas Instruments (TI) in particular has had numerous rounds of layoffs in recent years³. Recognizing its risks and rewards, an interviewee from the grant reflected on the overall condition of the manufacturing industry in the Dallas area:

¹ Baily, Martin Neil and Barry P. Bosworth (2014). "US Manufacturing: Understanding its Path and its Potential Future." *Journal of Economic Perspectives* 28(1): 3-26. Available:

<http://www.brookings.edu/~media/research/files/papers/2014/02/us-manufacturing-past-and-potential-future-baily-bosworth/us-manufacturing-past-and-potential-future-baily-bosworth.pdf>

² http://www.bls.gov/regions/southwest/news-release/areaemployment_dallasfortworth.htm

³ <http://marketrealist.com/2014/11/texas-instruments-announced-layoffs/>,

<http://money.cnn.com/2012/11/14/technology/texas-instruments-layoffs/>,

<http://www.wsj.com/articles/SB987530403565995985>

Manufacturing is up and down. It is a cyclical industry, it seems to me. Sometimes jobs are handled overseas, and sometimes they come back here. It is a cyclical industry. There is great demand for repair technicians – things like cellphones, etc. I think the Dallas area is a big growth market. There are a lot of companies relocating to this area. There is great demand for technicians in this area right now.

If workers can tolerate these fluctuations, however, overall advanced manufacturing is viewed as a strong industry for employment in the region and an opportunity to obtain work that is well paid, in demand, and whose barriers to entry are easily addressed through training and education programs at the community college level. As one interviewee stated, “There are a lot of opportunities around and that short term [investment of time] can get you a pretty decent lifelong career.” The VFETP was crafted in response to local labor market needs in the advanced manufacturing industry in the Dallas area. Based on an analysis of job posting data from Burning Glass, the grant proposal documented that, at the time of the proposal, 990 related job openings existed. The most common positions included the following job titles: machinist, CNC machinist, manufacturing engineer, CNC programmer, and machine operator. Projections of future demand from EMSI estimated nearly 4,000 job openings in these related jobs. The most common positions were maintenance and repair jobs. The college’s employer partners on the grant all stated that they sought to hire workers in these fields. In particular, TI, a very large regional employer, projected at the time of the grant proposal that they would need to hire 150 workers. With the grant reforms, described in more detail below, the programs in manufacturing and electronics technology sought to address this labor market need.

Project Goals

The project seeks to offer a holistic approach to meeting Dallas area students’ and employers’ needs. To better prepare students for opportunities in the industry, the college sought to address several major gaps in these programs through the grant. In the proposal, they noted three major concerns: 1) the lack of nationally recognized credentials, 2) outdated instructional equipment in the Richland manufacturing and electronics programs, and 3) an inadequate pipeline of students. To address these gaps and to meet the labor market needs as identified, the college set out several goals for the VFETP, which are summarized in Table 1. The college sought to ensure that instruction in these programs was closely aligned with employer needs by purchasing state-of-the-art equipment and technology for a new dedicated lab space and by integrating nationally recognized credentials from the National Institute for Metalworking Skills (NIMS) and the International Society of Certified Electronics Technicians (ISCET). They also sought to improve how students were recruited into the program by hiring a student navigator and conducting focused recruitment efforts for the programs, targeting veterans in particular. Finally, they sought to engage with local employers to ensure that the programs were aligned with employer needs and to help support students’ successful placement into internships and eventually into jobs.

Table 1. Key Project Activities in the Veterans-Focused Engineering Technology (VFETP) TAACCCT Grant

<p>Install New Equipment & Technology for Classrooms/Labs</p> <ul style="list-style-type: none"> • Prepare physical program spaces • Integrate technology-enabled learning with new manufacturing/electronics & simulation equipment • Integrate use of online learning including simulations
<p>Develop/Reform Curriculum Based on NIMS & ISCET Standards</p> <ul style="list-style-type: none"> • VFTEP faculty enhance online modularized curricula with narrated video walkthroughs • Development of PLTL-based program for contextualized learning/remediation via peer instruction, starting with electronics • Add prior learning assessments to facilitate articulation of prior learning, such as non-credit courses and military experience
<p>Implement Student Navigator Model, Integrated with STEM/CTE Team</p> <ul style="list-style-type: none"> • Student Navigator, Veterans Affairs, & Lakeside Counseling Center provide guidance and emotional/transition support for students • Student Navigator provides intrusive advising & meets workers at Job Center to assist them through training programs & job placement
<p>Recruit Students, Especially Veterans</p> <ul style="list-style-type: none"> • Design & implement marketing plan that includes general marketing & veteran-focused strategies • WFS Dallas qualifies TAA workers for services, informs qualified workers about VFTEP, refers to Student Navigator/Job Developer at Richland, & maintains data on all VFTEP students • Recruitment through veteran-related CBOs, local Chambers of Commerce, and business councils • Tracking all VFETP students through Richland student management & TWIST systems
<p>Engage with Local Employers</p> <ul style="list-style-type: none"> • Topically focused EAC meetings • Engagement with NIMS/ISCET certifying process • Cognitive task analysis • Develop co-ops and internships
<p>Coordinate with the Public Workforce System & Align with Statewide Workforce Plans</p>

The project has ambitious outcomes targets. The VFETP program was designed to serve a total of 337 unique participants throughout the life of the grant. Of these participants, the program targets 265 participants to complete a TAACCCT-funded program of study and enter employment in the quarter after program exit. Additionally, the 337 unique participants are targeted to include 72 incumbent workers who receive a wage increase post-enrollment.

Project Organization and Staffing

The college established a team and an organizational structure to implement VFETP activities. A Project Director is responsible for overall leadership on the grant in terms of implementing the academic reforms of the project. The grant builds on many responsibilities that were currently part of this position, including program development and employer

engagement. In addition, a Project Manager who is located in the grants office was hired to oversee the grant and its progress from an administrative and fiscal standpoint. Other key grant personnel include the lead faculty from each of the programs, as well as other faculty intended to be hired through the grant. A Student Navigator is an additional new staff person hired by the grant with the intention of improving student recruitment and retention and supporting employer engagement activities.

Key team positions have been hard to fill. The Student Navigator search went through four rounds before finally hiring a candidate who was qualified and ready to serve (she began her job in October 2015). This means that the Navigator joined in year 2 and had to hit the ground running to bring in students for the spring semester.

Additionally, some college staff reported the group has had a difficult time hiring full-time faculty to run the program, as well as difficulty finding adjunct faculty to teach the manufacturing classes (adjuncts for the electronics classes have been less problematic).. According to the Project Director and lead faculty, this is rooted in some requirements for the accreditation and in state requirements, which all combine to create a list of qualifications that are challenging to address: college degree, industry experience, and one year of full-time or two years of part-time experience in teaching. The Electronics faculty position was filled in the fall of 2015, and the Advanced Manufacturing faculty position was just recently filled with the new faculty member to start in the fall of 2016. Filling the positions requires having some of the faculty qualifications waived by the district; grant staff reported that they were able to get an exception to the requirement that the candidate have one year of teaching experience.

The new faculty members are an important part of expanding program capacity. The lack of staff was a fundamental problem that has led to delays and limitations in the amount of progress in some areas, such as employer engagement and increased enrollment. After the new Electronics faculty member was hired, she was able to contribute to the direction and planning of the program and to launch its PLTL program, as discussed below; the two Electronics faculty members appear to collaborate very effectively. Though the Advanced Manufacturing program has made use of several adjuncts to cover its course offerings, these adjuncts were unable to contribute to the direction of the program in the same way that a full-time faculty member could have. Though the faculty lead for Manufacturing is dedicated to fulfilling program objectives, the implementation and instruction of the program is a job written for two; the absence of a second faculty member increased the burden on the faculty lead at a time when both the program and its inaugural students required a great deal of attention. A new colleague who can collaborate with the lead instructor has the potential to greatly enhance the program's capacity to achieve grant goals.

KEY IMPLEMENTATION ACTIVITIES

In addition to establishing the staffing and general organization for the project, the implementation team had several key tasks to accomplish in the first two years of the grant. In the sections that follow, we present findings related to the renovation of space and acquisition of equipment, the development and redesign of curriculum, the student navigator model, program recruitment, employer engagement, and workforce system engagement.

Space and Equipment

Richland had manufacturing and electronics programs in place before the TAACCCT grant, but these programs were not aligned to NIMS and IS CET standards, and the equipment in place was considered outdated by those familiar with the old labs. The TAACCCT grant has enabled the program to install new equipment and technology for classrooms and labs and develop or reform the curriculum based on NIMS and IS CET standards. We discuss each in turn.

KEY TASKS: Install New Equipment & Technology for Classrooms/Labs

- Prepare physical program spaces
- Integrate technology-enabled learning with new manufacturing/electronics & simulation equipment
- Integrate use of online learning, including simulations

The new labs and classrooms are up and running. The labs and classrooms are housed together to form a regional training center for advanced manufacturing and electronics technology, now called the TEAM Center (Technology, Engineering, and Advanced Manufacturing), in Wichita Hall. They are adjacent to a newly designed STEM Resource Center, which includes offices for STEM advisors and the student navigator, shared learning spaces, and a conference room. Faculty offices are directly across the hall from the new classrooms and labs. The Project Director (a.k.a. the Executive Dean of Engineering, Business, & Technology) has an office suite at the main entrance to the building. In essence, a majority of VFETP students' needs can be met in one location, and a majority of the grant team have opportunities for easy in-person communication and collaboration.

The building renovation was completed in December 2015, and then the faculty and vendors went to work installing the new equipment. This was a departure from the original timeline target of having the laboratory and equipment in place by the end of year 1, which would have given first-session students some access to the new equipment. Delays are a common issue in projects of this scope, as unanticipated challenges arise. Unfortunately, the December completion meant that fall 2015 classes did not have access to the equipment, which was a source of frustration among students in our focus groups. Some improvements are ongoing; minor elements such as signage and equipment location were still being worked out at the time of the evaluation site visit in April 2016.

The TEAM Center renovation totaled approximately \$4 million dollars, including approximately \$1 million in TAACCCT major equipment funds and \$3 million in funds leveraged by Richland College. The key players in the planning report that they never were refused any requests to the college and that, in some instances, the purchases even exceeded what they asked for (e.g., new tables throughout to improve aesthetics). All equipment purchased was approved by the EAC, and EAC members helped make connections with vendors (for further discussion of the EAC, please see the Employer Engagement section below).

The facilities are modern and quite striking. Every classroom, lab, and office has glass walls, creating an open feel and allowing passersby to see the new equipment in action. However, there are some elements that are more striking than practical. Writing boards in one classroom were originally clear glass on a brick wall, but they were very difficult for students to actually see. The lab lights have dimmers, which are unnecessary. However, the college has been open to changing things as needed to make the space as functional as possible. It is a premier space and demonstrates the capacity and commitment of the college to providing students with opportunities to become experts in sought-after skills and to enhancing the workforce in this industry that is so important to the local area's economy.

The new labs generated interest among students and employers. The lab was described as a recruitment tool by several interviewees. As one administrator described, "I think what the project has done for us, is it has put the visual out there. When the students walk by and they see the machines, they go, 'Wow, what kind of program is that?' And we tell them.... They figure out how it works and what they're doing and the degree that they would get out of it." Students in focus groups echoed the sentiment. According to one, "The thing that attracted me most is the new building.... It was pretty nice, and so far I am liking it." The lab has also been helpful in changing the perceptions of prospective students of what manufacturing jobs are like.

In addition to piquing student interest, these labs have received increased attention from local employers. This interest extended beyond those employers already involved with the college through the EAC and may help attract new partnerships for the program. As one grant staff member stated,

Some of the newer employers... for them, having a state-of-the-art facility—all shiny—and potentially getting employees who are job ready when they don't have to bring them in and teach them everything... for them, it is a big plus.

To celebrate and promote the new equipment and lab, the college held an open house for the facility on April 21, 2016. Many employers from the advisory board as well as local leaders from the community and officials from the Dallas County Community College District (DCCCD) attended. Grant staff report that this event was well attended and may have rekindled interest from some large employers in the local area who were impressed with the facility. While the

open house generated more interest among employers in the college's programs, it remains to be seen how the college will convert this interest into deeper engagement. At this stage, it is not clear how the college plans to follow up on this event and leverage this interest into further involvement in the programs; creating formalized plans and implementing them quickly could allow the program to capitalize on the momentum this event established. In addition to the open house, the college has been encouraging employers to stop by and look at equipment as well as hosting employer tours of the new facility; creating further opportunities to bring employers in on a regular basis could prove beneficial, as some interview respondents noted that the lab forms a centerpiece for engaging employers that helps to impress them with the college programs. Several grant staff report that the new lab was a proud achievement of the grant; it has clearly increased enthusiasm for the program among college faculty and staff, students, and local employers.

Curriculum

Two certificates are up and running and nested in AAS degrees. Two of the five certificate programs from the proposal are currently in operation: the Advanced Manufacturing Certificate (CNC/CAD/CAM Certificate) and the Electronics Technology Certificate. Both programs are advertised on the site as one-year programs, though it would be a very busy year; the semesters outlined go as high as 22 credits each (we will discuss some implications of this in the section on recruitment). The two certification programs share 15 required credits.

Students on both paths must take Basic Computer-Aided Drafting, Introduction to Speech Communications or Public Speaking, College Algebra or Technical Algebra, Intermediate Machining I, and Plane Trigonometry or Technical Trigonometry.

The Advanced Manufacturing Certificate is 43 credits, all of which can be applied to the 60-credit Manufacturing AAS. To complete the AAS after earning a certificate, a student would need to take Engineering Graphics, DC Circuits, AC Circuits, an elective in Humanities/Fine Arts, English Composition I, and an elective in social/behavioral science. In addition, the department site lists Occupational Skills Awards in CAD or CNC/CAM. Each of these is a subset of nine specialty classes from the certificate/AAS program.

The Electronics Technology Certificate is 38 credits, all of which can be applied to the 60-credit Electronics Technology AAS. To complete an AAS after earning a certificate, a student

KEY TASKS: Develop/Reform Curriculum Based on NIMS & ISCET Standards

- VFTEP faculty enhance online modularized curricula with narrated video walkthroughs.
- Development of a PLTL-based program for contextualized learning/remediation via peer instruction, starting with electronics
- Add prior learning assessments to facilitate articulation of prior learning, such as non-credit courses and military experience.

would need to take English Composition I, Hydraulics and Pneumatics, College Physics I, Linear Integrated Circuits or Microcomputer Control or Cooperative Education – Engineering Technology General, an elective in social/behavioral science, an elective in humanities/fine arts, and Technical Math Applications.

Three programs are not yet operational. In future semesters, the college will roll out certificates in Electromechanical Maintenance, Advanced Design, and SCADA. The curricula for Electromechanical Maintenance and Advanced Design are complete and awaiting approval from the DCCCD, and some courses for the Electromechanical Maintenance program are already being offered. The college just recently contracted with a consultant to develop the SCADA curriculum, with AAS curriculum design scheduled for a June 30, 2016 delivery and certificate design, courses, and equipment recommendations scheduled for a July 15, 2016 delivery. However, this item had not yet been delivered as of September 1. The grant team reports that SCADA development was hindered by the process of locating a consultant with such a specialized area of expertise.

The amount of paperwork and approvals through the College and DCCCD are part of the explanation for the delays. One potential option that was mentioned by grant staff is to offer these programs through Continuing Education rather than as credit-bearing certificates. This option would allow the college to more quickly get the programs operational; however, the pathway to a future AAS would be less guaranteed, as students would have to petition for credit later as is typical under CE arrangements. In these situations, it is not uncommon for schools to combine the two strategies, creating Continuing Education certificates with the intention of converting them into credit-bearing courses as soon as possible.

In addition to specific requests for the grant that have been waiting for DCCCD approval, the grant staff is waiting on the DCCCD to rewrite its PLA system throughout all the colleges; this means that there is no formal progress to report this year on PLA for this grant.⁴

Peer-Led Team Learning (PLTL) is up and running. Under the direction of the new faculty hire in Electronics, the PLTL program was launched in mid-spring 2016 for DC circuits, and it will ultimately be expanded to other classes as well. The program is run through the STEM Center and offers some tutoring help for students (faculty estimate that about 25-30% of students taking the DC Circuits class use it). The purpose of the program is two-fold; first, it can help present students with materials they will see in class, and second, it will offer tutoring to address deficiencies. They undertake projects as well; in the first semester, they built circuits they otherwise had not learned about yet to build excitement and maintain motivation for the program. The hope is that, in the coming semesters, it will become a very collaborative, enjoyable environment, as described by one faculty member:

⁴ Until the new procedures are formalized, students can be evaluated on an individual basis under the current, more informal system where students work with their advisor to put together documentation of their experience. This work is then evaluated by faculty who can make a recommendation to the dean for approval.

I envision PLTL ... as a club or cool place to be. If you want to do fun stuff or you need help, or you want to expand your horizons, or just want to be in network environment, I want the electronics labs to be a cool place to hang out.

In late spring, the Electronics faculty also launched an online PLTL community to extend and support in-person PLTL meetings.

The programs are being aligned with national and international credentials. Richland executed contracts with the National Institute for Metalworking Skills (NIMS) and the International Society of Certified Electronics Technicians (ISCET) early in the grant that put them on the path as an institution to become approved and accredited locations. In September 2015, ISCET certified the Richland Electronics Engineering Technology Program; achieving this entailed a crosswalk of their Electronics Technology curriculum with ISCET standards. The program prepares students for the ISCET Associate-Level exam, which is the basic electronics component of the full CET (Journeyman-Level) exam and includes content on basic electronics, math, DC and AC circuits, transistors, and troubleshooting. The plan is to offer the students the exam in their last semester at Richland with one sitting free of charge.

To align with NIMS standards, Richland adopted NIMS textbooks and adapted its curriculum to include more hands-on learning opportunities using the new equipment. Richland is in the process of becoming an accredited NIMS site, and grant staff are working on completing the requirements for this designation. During the spring break of 2016, the lead manufacturing faculty held a NIMS workshop for all instructors in the program to familiarize them with NIMS and so that they can begin to pass NIMS tests themselves, a necessary requirement for the instructors to sponsor students taking the tests in the future. As of June, the college has instructors or faculty who can sponsor tests in seven of the eleven NIMS Machining I Skills Standards: CNC Milling Operations I; CNC Turning Operations I; Drill Press I; Job Planning, Benchwork, & Layout; Measurement, Materials, & Safety; Milling I; and Turning Operations: Turning Chucking Skills. Currently, Richland is focused on four NIMS Machining I tests: Drill Press Skills I; Job Planning, Benchwork, & Layout; and Manual Milling Skills I, Measurement, Materials & Safety. Students take the tests as part of the curriculum, immediately after the relevant information is covered in their courses.

The college and NIMS staff actively sought to conduct outreach to help employers understand the value of the NIMS certifications. NIMS staff have visited employers along with grant staff, including the AVP and faculty, on multiple occasions to get the word out in the manufacturing community about the NIMS credentials to make sure employers know their contents and understand their value in ensuring that students receive training that meets industry standards. During these visits, NIMS staff and grant staff discussed the NIMS certifications and the college's programs, with the goal to increase awareness of both the certifications, certificates, and degrees being offered and how these programs are creating workers with valuable skills that can benefit the employers. These visits were designed to shape

employers' expectations of the students from the college's programs and to gather information on employer needs and interest in training programs. During these visits, the grant team also found some interest among employers in conducting incumbent worker training.

Faculty and the advisory board members identified employers and scheduled these visits. In May 2016, they completed four visits in one day. In September 2015, they also conducted multiple visits. They are hopeful that, as more NIMS-certified students get into the workforce, there will be an emergent reputation of the credentials among employers. Whether this occurs is something to be examined as the project continues.

In contrast to NIMS, the ISCET certification is not well known, and there is no process in place to increase its recognition. Grant staff report that there seems to be little interest among employers in the ISCET and little interest in students taking it. For example, students can take the test for free via Perkins, but there has been little interest even with no cost to the student. When asked about the value of this certification to them, one student responded,

We don't know that yet. Because we don't know if the different jobs are going to accept those. If they are worth anything to employers, I don't know yet if that is the case. They may look at it just as a piece of paper. Why then ... waste your time on it?

A significant challenge for the ISCET test is that TI, a major employer that could use this certification in hiring, already has its own test for hiring. Grant staff report that, while TI hiring managers like ISCET, their own test is still required for hiring. In this way, ISCET is "nice to have, but it's certainly not going to open the door." Some grant staff observed some value in the certification, stating, "It gives students a means of proving to outside employers that they are competent in their field before they graduate." Some grant staff report that, overall, employers are more familiar with NIMS than with ISCET and that ICSET generally does not seem to make a difference for employers in hiring. They report a need to educate employers about what it means, but this only goes so far, particularly in cases like that of TI, where hiring practices are already set against other criteria.

Supplemental grant activities are delayed but in progress. As part of the supplemental grant, the grant team is currently working on cognitive task analysis (CTA) for a NIMS 2 and NIMS 3 certification. The process will involve developing a NIMS standards-based curricula for short-term workshops that train and certify participants as appropriate. CTA is an important component of the grant with the goal of building virtual online training for manufacturing processes, specifically EDM-Plunge, EDM-Wire, and 4-Axis Set-Up at the NIMS 2 or 3 level. An important aspect of the CTA is that it involves engaging with industry experts from key employers to gather in-depth information on how work is done. NIMS consultants are working with the team to facilitate the process. Together, the grant team and NIMS consultants established the following targets, although, these targets are delayed:

- Webinar to complete Phase One. Tasks include defining the CTA process, preparing for the first in-person session, and identifying potential projects or jobs for the CTA. This component of the plan was completed at the end of June 2016.
- In-person meeting with industry leadership to complete Phase Two. This meeting will bring Richland College, employers, vendors, and other industry leaders together to identify cognitive tasks, industry experts to perform them, and the knowledge structures associated with the tasks. This component of the plan was planned for August 2016, but has been delayed.
- In-person meeting in the lab to complete Phase Three. This meeting will involve setting up and operating the processes with observation. While this had been planned for September 2016, there are new targets for this component as well due to the delay in the preceding item.
- Delivery of report and webinar for industry leaders to complete Phase Four. This report will include analysis of the Phase Three observation and formatting results for learning modules. This report was planned to be complete by November, but will also be delayed.

According to grant staff, the biggest challenge with CTA is getting time with the industry experts and coordinating their schedules. The industry expert is the worker actually doing the job, and staff involved in the project report that it can be hard to get them away from their work, even though it seems that there is industry support for this activity. Grant staff reported that the CTA is a longer process than expected and that it involved more detailed steps than were initially understood, although some report that CTA is similar to analytic processes already used in CTE at Richland. They are still in the early phases of this process and expect to have it completed by the end of the year, somewhat behind their target completion within year two of the grant.

Online learning, a major component of NIMS 2 and 3, is a work in progress. In the spring of 2015 Richland faculty began discussions about how to use 3D simulations and online support for NIMS credentialing with Immerse2Learn, which provides videos and interactive simulations and exercises aligned to NIMS standards. However, Immerse2Learn will not be put into place until it goes through a bidding process with the DCCCD and college.

Student Navigator

The Student Navigator is a new position to Richland and, if successful, may serve as a model for other programs. The position itself is currently in a state of introduction and evolution, and some confusion has arisen.

The Student Navigator role is not universally understood. The Student Navigator (hereafter referred to as the Navigator) has been tasked with a job that encompasses many different elements. However, what exactly that entails was described in different ways by different interview respondents, with elements that can be broken down into student-facing and employer-facing tasks.

KEY TASKS: Implement Student Navigator Model, Integrated with STEM/CTE Team

- Student Navigator, Veterans Affairs, & Lakeside Counseling Center provide guidance and emotional/transition support for students.
- Student Navigator provides intrusive advising & meets workers at the Job Center to assist them through training programs & job placement.

On the student-facing side, which has the greatest consensus, the Navigator is to help recruit students and shepherd them through the Richland programs and into jobs; as described by the project narrative, “the function of the Navigator is to advise intrusively and stay with participants from enrollment to job placement.” To accomplish this, one major element of her job is recruitment. She has visited high schools and career fairs. She has visited a military base, which was difficult to gain access to, after a history professor who had done work on the base helped her to gain access. She has taken a tour of manufacturing sites with a vendor on the EAC to get a sense of what the jobs that VFETP students can acquire upon graduation are like, increasing both her contact with EAC members and her knowledge of what exactly the program is selling.

Once students are in the program, the Navigator is also tasked with ensuring that they persist and thrive. More than one interview respondent jokingly referred to her job as that of “mom” to the students, describing a role that balances support and warmth with firm direction when appropriate. Keeping students on the pathway from school to employment may involve advising them on what classes to take, finding them when they disappear, helping them leverage resources to meet their financial needs, etc.

On the employer-facing side, there is less consensus about the Navigator’s role. It is clear that she will have some contact with employers to help place students in internships, co-ops, and ultimately in employment. However, as described by one administrator, she is also supposed to touch base with local employers to keep them engaged with the project, which ideally will manifest in increased participation in EAC calls and meetings, bringing in employers who have been on the periphery. To accomplish this, she is to help stay in touch with EAC members, working with them one on one to talk about their needs and to try to increase

their engagement with the EAC. This would appear to be an extension of the job as originally described in the proposal and should be undertaken with great caution. The proposal also originally described other entities – particularly Workforce Solutions of Greater Dallas – as more involved than is currently the case with the central Navigator functions of recruitment and job placement. The connection to Workforce Solutions of Greater Dallas is not fully operational at this time. In the project plan, there should be a linkage that allows job developers at the One Stop Centers to directly refer clients to the VFETP program. While the program is accredited with the state and approved for Individual Training Account funds, there is no evidence of a strong pipeline at this time between the One Stop Centers and the program. Without their active engagement, it is risky to use the Navigator for any functions other than those originally outlined, as the slack in recruitment and completion needs to be addressed urgently in order for the grant to be considered successful.

The faculty have strong relationships with local business, which is a very helpful in developing and sustaining the program. To maximize the impact on the program, the Navigator can be brought into these relationships as well for the purpose of student placements in internships, co-ops, and employment. There is little indication that the Navigator is involved currently in meetings between faculty and employers. This may in part be due to the delay in hiring the Navigator and to the sensitive nature of relationships between faculty and employers. However, the program as a whole could benefit from involving the Navigator in these relationships as soon as possible so that she can make the connections needed to find internships and job opportunities for students.

Lines between the Navigator’s and STEM advisors’ functions are muddy. Another manifestation of confusion in the role of the Navigator is the distinction between the roles of the STEM advising team and the Navigator, which is not completely clear at this point. The Navigator is located in the STEM advising office and reports to the Associate Director of CTE/STEM, though in the project narrative, she is described as being directly supervised by the Project Director. There are positives and negatives to this setup. The Navigator has been performing some STEM advising functions for TAACCCT students, such as helping with spring registration advising, and some of the STEM advisors have been advising the Navigator’s students. As the Navigator’s job necessarily involves time out of the office, it is helpful to have other advisors ready and able to see drop-in students in the VFETP program and then forward their names on to the Navigator for follow-up.

As one member of the grant team worried, “most people don’t understand that her job is not like [the STEM advisors’] job.... even though she is housed [in the STEM Center] and reports to the same supervisor, her duties are not the same.” It appears that some advisors have been hesitant to hand over students they had been working with previously to someone who is newer. The current plan is for students who are already locked in with other advisors to stay put, which means that the Navigator is not getting access to all the students that she is supposed to serve; at the time we visited in the spring, she had seen about a third of program students. She has a background in social work, so she is particularly suited to helping students

navigate personal issues and find resources such as babysitting to help them persist. In the proposal, her role is identified as providing personal advising, while the STEM team provides academic advising; however, this distinction may be more impractical given that the two often bleed together.

Unfortunately, we found negative impacts in this model of work. Many students in our focus groups did not know who the Navigator was when we asked if they had worked with her. This may have been at least in part due to our use of the term “Navigator”; it was unclear whether they knew what that was. However, the use of the Navigator’s name did not necessarily make it much more clear to them. Some said that they had spoken with her to get help picking classes or received an email from her. One was referred to her by another advisor. However, faculty are not referring students very often, and it is not clear that other advisors are, either. The faculty do not appear to understand her role, which was described by one as “to promote the program, to recruit for the program” without any mention of her role in intrusive advising or helping students persist. Without clear and consistent communication about her role coming from the faculty and other advisors and without a stronger emphasis on connecting her with students, it is unlikely that students will be able to understand who she is or how she can help them.

The Navigator inspires great confidence in those who know her. Though we have outlined the difficulties that the Navigator faces, it is important to note that she is described very positively by those who have worked with her, and they have a great deal of confidence in her. The position of Navigator was filled in mid-October 2015, when the grant was already in year 2, and this has created a situation where she is often described by interviewees as “new” to the program and assumed to still be “learning the ropes,” despite having been there for approximately six months at the time of the evaluation site visit. The Navigator has a master’s degree in social work and approximately one decade of experience in advising; her resume is a strong fit for the job. With some greater clarity of purpose on the part of the team, the position has great potential.

Recruitment

Recruitment is a key concern. Student recruitment is a pressing concern; more than one participant mentioned that it was a great challenge to get students

KEY TASKS: Recruit Students, Especially Veterans

- Design & implement a marketing plan that includes general marketing & veteran-focused strategies
- WFS Dallas qualifies TAA workers for services, informs qualified workers about VFTEP, refers to Student Navigator/Job Developer at Richland, & maintains data on all VFTEP students.
- Recruitment through veteran-related CBOs, local Chambers of Commerce, & business councils.
- Tracking all VFETP students through Richland student management & TWIST systems

into these types of programs. The grant team is very confident that these programs will lead to high-paying, in-demand positions. There was a sense that success may beget success; as the first classes of students enter internships and co-ops, they will prove their value, and that can generate important word-of-mouth endorsements. Additionally, Workforce Solutions can help to get the word out with employers, though they will need more information on the program. These efforts are critical to keeping the program afloat. As noted by one interview participant, "I think it's very sustainable as long as we can keep attracting students. The thing is, this is an expensive program to do; this equipment will be outdated in the next five to ten years, so we'll have to continue to invest in the program to keep the equipment relevant." Without students and without student tuition, the program is simply unsustainable.

Potential students may come in with preconceived notions that need to be corrected.

One element that was cited by respondents as problematic for recruitment was the pre-existing ideas that the public holds about manufacturing: it is dirty, tedious, low paying, physically difficult, and men's work. This can affect students' interest in the programs and the support that parents provide for their children in beginning such programs. However, while some noted that there are still shops where these older ideas about manufacturing still apply, the advanced manufacturing and electronics fields are actually quite different.

Faculty and staff described talking with parents through open houses or helping students make the case to their parents that this field is a worthy pursuit. However, the labs themselves also provide the counterargument to the notion of manufacturing as dirty or menial work. Several individuals responsible for interacting with potential students described taking them through the labs and showing them what a shop would look like. One even noted the benefit this has for potential female students, who have often not even considered entering this male-dominated field. According to one staffer,

"It is great because the lab is up and running. We tell them, 'Come and see it yourself that [manufacturing work] is not just picking up boxes but also paying a lot of attention to details....' One lady, for example, asked, 'Am I big enough to go and work in manufacturing?'"

In this case, the respondent was able to walk the student down to the lab to see for herself that there was nothing about the job that would be particularly challenging for a smaller woman. Given that the current population of students is only 16% female and overall recruitment is a concern, efforts to increase female participation have great potential to positively affect the program.

Marketing could be more targeted. This issue emerged in multiple interviews and meetings. The concerns were twofold: there was great concern that there might not be enough students recruited to the program and that employers and industry would not know about the program.

There was a consensus that the marketing department did not understand the programs well and that it was more suited to advertising Richland generally than it was to advertising the program specifically. This led to some concern that the marketing was not strategic enough. However, part of this issue may have been related to a lack of clarity on the part of the grant team. This is reflected in the Communication Plan for the TAACCCT grant that was generated in October 2014 and updated in February 2015, where the marketing department notes challenges in promoting the programs: there was no title to drive traffic to (the TEAM acronym was not in place until Spring 2016), the website landing pages did not exist, there needed to be photos or video shoots, etc. Though these issues were ultimately fixed, they may have contributed to delays in the marketing work.

However, there have been improvements in the marketing: there are now videos on the website about the program and a flash drive that can be given out to prospective students. The marketing department was also working with the Navigator to create materials such as brochures that can be given out at career fairs and high schools. These efforts are important, as one administrator described the need to get the word out: "The jobs are here, the money is good, and you can go and start working within two years."

Website lacks detailed information on programs. The current website has videos that make the general case that there are high-demand, high-paying jobs in the electronics and advanced manufacturing fields, that the Richland programs are strong programs with state-of-the-art equipment and offered at a good price, that the programs are veteran friendly, and that the current students are enthusiastic about the programs. However, these arguments do not exist in the text or images of the site, and, importantly, there is no information on the website regarding the specific occupations these programs are training for. Further, no information is available on the specific certifications that Richland offers, which classes feature those certifications, or what advantages the certifications confer for students on the job market. The links for each degree plan or certificate plan redirect to a DCCCD webpage with the catalog entry for the plan. This is a lost opportunity to describe each of the programs in detail: what their goals are, what their requirements are, and what specific jobs they prepare students for. The Navigator's office hours could also be added rather than a "stop by" invitation, so students are able to target their visits to times when she is available.

Program outlines may intimidate students. On the Engineering Technology web page⁵, potential students can link to the degree plans currently offered in the TAACCCT program, as well as the certificate programs. While the AAS degrees are outlined in four semesters of 12-18 credits apiece and the Electronics Technology program is split into three semesters with loads of 7-17 credits apiece, the Advanced Manufacturing certificate program is presented in a way that is simply unrealistic for most students and could prove a deterrent for those who would otherwise be interested in the programs. It is outlined in two semesters, which carry 22 and 21 credits, respectively, or seven classes each. Students who are new to college or those who may

⁵ <https://richlandcollege.edu/ebt/engineering-technology/>

be returning after a previous exit and might otherwise be excellent candidates for the program may find this particularly daunting and not realistic.

Veteran recruitment is problematic. Veterans have been a much more difficult group for the team to engage than anticipated. The program has worked to be accommodating, trying to create connections through Richland’s Veterans Services office, sending the Navigator to nearby bases, and even using NIDA trainers in Electronics programs to match what all branches of the military use for their trainers.

However, there have been institutional hurdles to reaching veterans. Early efforts to engage with the military and veterans organizations did not yield noticeable results; the early implementation team reports having targeted marketing to them, gone to Stand Down events, handed out flyers, etc., with little to show for it. Later, the Navigator had a difficult time gaining access to any bases, and when she was allowed entry at Fort Sill, she was directed to present but not recruit; in essence, she could not follow up without the servicemen actively seeking her out on their own. One administrator said that this was in part because veterans transitioning out are isolated by the military to protect them from being overwhelmed by a deluge of recruitment and junk mail as they are preparing to re-enter civilian life. To circumvent these hurdles, the Navigator and one project lead have compiled a list of veterans who have come through Richland at one point or another – over 700 emails – and will begin a campaign to engage in outreach through that avenue. The Navigator has been working with a colleague in the Veterans Services office at Richland to get an email about the VFETP program out through the Richland Veterans Services office and Veterans Services offices at sister colleges as well. It is still too early to say whether these efforts will bear fruit.

Employer Engagement

Through the TAACCCT grant, the college sought to build its employer engagement efforts upon existing efforts at the college. Several of the grant staff had already been responsible for engaging with employers as part of their work at the college. They had already been involved in interacting with industry, developing internships, and helping with job placement. They hoped that the grant would allow them to further build on these activities, particularly to give input on the curriculum and to provide job opportunities and internships. They also sought to get feedback from employers on the success of their students on the job and how their programs compare to what they see at other schools. They sought to find out what they need and to build this into the programs, including asking employers about needs for computing, equipment, and applied math. They hope to identify what works and what is missing in their programs.

KEY TASKS: Engage with Local Employers

- Topically focused EAC meetings
- Engagement with NIMS/ISCET certifying process
- Cognitive task analysis
- Develop co-ops and internships

Early assessments of overall employer engagement are mixed. On the one hand, grant staff report a great deal of enthusiasm amongst their employer partners; on the other hand, they also report a desire to have more involvement from employers. Some report that members of the Employer Advisory Board (EAC) are very enthusiastic and putting a lot of energy behind the college efforts. For example, active members of EAC working with the college were able to recruit a larger group of employers to participate in a NIMS standards meeting. This activity was separate from the TAACCCT grant but drew from many of the same employers and demonstrated the energy of some employers and their ability to recruit other employers to participate. Some grant staff report that employers are there when they are specifically requested but not around otherwise. This sentiment implies that employers are not regularly engaged in a meaningful way. Others expressed stronger concerns that the grant team may be missing opportunities to aggressively engage with employers through this grant project.

The EAC is central to the college's employer engagement activities. The EAC as discussed in the proposal to DOL included 15 employers that provided support letters indicating that they were interested in hiring students who completed the program. Since the start of the grant, several EAC meetings have been convened, including the following: June 2015 (in-person), September 2015 (in-person), December 2015 (via phone), and February 2016 (via phone). In April 2016, advisory committee meetings for electrical engineering technology and manufacturing were each convened. Many members of these committees overlap in membership with the EAC. At the end of the grant, the EAC will be folded back into these two advisory committees to maintain its continuity and build on the momentum generated through the grant.

In the first year of the grant, the EAC reviewed and approved the specific type of equipment that the college bought through the grant. Their initial conversations with employers helped to identify these different vendor names based on what employers were using in their facilities. Based on this input from employers, the college bought three brands of equipment because employers were using these different types of equipment. The grant team then sought to keep employers updated as equipment came in. As the equipment was installed in the new lab on campus, grant staff sought to engage employers by asking them to help name the lab.

The EAC meetings are a focal point for information sharing between the college and the EAC members. Grant staff report that a goal of these meetings is to update the EAC on the college activities and to gather information from employers. Specific examples of information the college seeks from employers include input on the type of equipment to buy, feedback on how their students are doing at work, and information on who is hiring or not. In general, as one grant staff person stated, they would like to know "what are the successes and what are the challenges, and what else do we need to be doing to better prepare the students?" Grant staff emphasized the importance of communication and keeping it moving both ways between the college and employers. Grant staff report that employers are involved in EAC for a variety of reasons, including their need to find workers and a desire to "give back" to others and the community.

EAC meetings promote information sharing but may not strongly engage employers. Grant staff report that they would like to get better participation at the EAC meetings; they often get many more RSVPs than actual participants. Some employers have been very engaged and other employers have been less involved but still interested and may need more guidance about how to become involved. The current EAC meetings are very transactional, focusing on sharing information. Much of the time in the meetings is spent with grant staff talking and sharing information on college activities. Meaningful discussions with participating employers are more limited. The format of the meetings might be changed to more actively engage employers in problem solving. While sharing information on the programs is a core part of the meetings, additional attention might be spent on discussing a challenge or an issue of relevance to the employers (as was the case in equipment acquisition). It would also be beneficial to find ways to evoke more discussion on the part of employers (e.g., structured discussions and break-out groups). Additionally, while conducting EAC meetings via teleconference might make participation more accessible, it also might limit the types of conversations that can occur relative to in-person meetings, where people might be more willing to talk and where it is easier to structure the conversation through exercises that encourage all in attendance to contribute.

The college is seeking to broaden employer partnerships beyond the EAC. Grant staff reported that a search of the regional labor market revealed close to 600 companies in advanced manufacturing within a 50-mile radius of the college. Grant staff would like to begin to reach out to them. Within the past year, more companies that are currently looking to hire for their workforce have been in touch with the college, including Lockheed Martin, Bell Helicopter (not currently hiring but expecting large hiring soon), and Carley. They also have had recent interest from MAXIM, UPS, and FedEx, as well as Walmart, which is interested in their electronics programs for preparation for supply chain technology.

Richland College as a whole has increased its commitment to employer outreach. In addition to employer engagement efforts through the grant, a new Associate Vice President for Workforce and Continuing Education has been conducting a large volume of outreach to employers. In the first months of her job in the past year, she visited over 50 companies. Grant staff report that this outreach has led to greater employer involvement in the grant. That outreach is occurring from a high-level position within the college is a promising sign for employer engagement, showing a higher level of structural support for relationship building. Other grant staff report the need for this broader outreach, as they report that the college is often not well known in the community—sometimes referred to as the “hidden gem” once companies find out about its programs.

Employer engagement activities within the college are only loosely coordinated. The Navigator is responsible for keeping track of the college’s employer partners. However, there is no system to track and coordinate employer outreach efforts across different staff at the college, such as the AVP, program leads, and faculty. Increased employer engagement activities will require more complex systems to communicate about employer contacts and coordinate efforts

to reach out to employers. While sharing this information may require staff to overcome issues of trust by sharing employer contacts, to successfully realize the goal of employer engagement staff will need to engage in different levels of relationship building with employers that are complementary. For example, within an employer, the CEO may be able to make certain commitments to working with the college that are different from those of the line hiring manager. These commitments may be best made by different college representatives. However, these efforts may all proceed in a coordinated manner.

Furthermore, grant staff have some confusion about roles and responsibilities with employer engagement. On the one hand, some on the grant team report that the Navigator is responsible for maintaining relationships with the EAC members, in addition to working with students. A key part of maintaining these relationships with employers is keeping track of whether they think the project is moving in the right direction. The Navigator is tasked with visiting industry contacts along with the lead faculty; these meetings are typically set up through faculty contacts, although the Navigator also holds some initial calls and meetings with new employers. On the other hand, others on the grant team state that the faculty are the leads in maintaining employer relationships, as faculty connections with industry are important for the programs. Both lead faculty members are working on employer engagement, but grant staff report that they are both busy with program activities. Some of this occurs through meetings, and some of it happens more informally through friendships, former working relationships, etc. Faculty engage a great deal of one-on-one interaction with employers, including more informal contacts to ask questions outside of the formal meetings. These informal contacts are not tracked in any way. The roles of faculty versus the Navigator in conducting employer outreach are not clearly defined, which may lead to confusion and missed opportunities as the project progresses. Furthermore, coordination of grant staff outreach to employers with the AVP's outreach may also benefit from further formalization and coordination.

The cyclical nature of some companies raises questions about the college's focus.

Currently, TI wants to hire students but has also had large layoffs in recent history. Their involvement with the college comes and goes with their demand for hiring—if they need to hire, they are involved; otherwise, they are not. However, their business is back, and they are currently expecting to hire 200 people over the next three years. They have a couple of colleges, including Richland, which they often hire from, but they do not have any specific commitments to hire students from any of them. The volatility of the industry and of TI in particular raises concerns for the college about how much to rely on these longstanding relationships with companies that ebb and flow in their business and how to adjust their program enrollment. Casting a wider net of employers, even if this includes many smaller companies, may somewhat help the college manage the ebbs and flows of the industry. While the cyclical nature of the industry will persist, a wider range of employer relationships might provide a wider set of opportunities. However, this approach may change the degree to which the college aligns the content of their programs with specific employers. Given the amount of effort involved in changing the curriculum, the college should carefully consider whether to respond to the specific requests of one large employer, such as TI, when designing their degree programs.

Employer presentations help students learn about careers. Some large companies in the local area make presentations to students at the college, providing useful career information to students. Both Texas Instruments and ONCOR recently made presentations at the college on career nights, where the goal is to share information on their companies and to recruit students from the programs. Grant staff reported these presentations were “very beneficial” for students in raising awareness of this type of work, particularly the hands-on nature of these fields. As one interview participant noted,

We just had TI and ONCOR here two weeks ago. And we sent out a massive email to our students saying, ‘Hey, be prepared, ONCOR and TI will be on campus. Bring your resume; dress the part.’ We had at least forty-five students show up.

They are would like to increase the number of companies that come in and talk with students or to bring students in for tours of their worksites. They are also considering inviting employers to give presentations in classes, but they see the benefits of doing career nights rather than individual classroom presentations because all students can attend. Another approach that grant staff are developing is to have employers make videos for students to view where they talk about their companies, job opportunities, and expectations for students. In this way, they can provide the broadest access to this information for students.

The college could expand its use of local employers as adjuncts. This strategy, described early on as a goal of the project, could bring in more employer connections to the college. The goal of doing this is for the employers to get to know the students first-hand, deeply understand the program, and potentially hire students. At the same time, adjuncts bring their experiences into the classroom and improve students’ learning of industry-relevant knowledge. Several grant staff expressed disappointment that they had not been able to engage their employer partners as adjuncts to the extent that they had hoped for. Grant staff report different reasons for not yet hiring employers as adjuncts, including restrictions in hiring qualifications under DCCCD rules and a lack of student enrollments that prohibited the hiring of additional staff. Nonetheless, grant staff report that this would be part of their plans moving ahead. It may prove beneficial to think of alternate ways to bring employers into the classrooms to increase their direct contact with students as well, such as guest lectures, demonstrations, or even visits to local job sites.

The college sought to increase internship and co-op opportunities, but much work remains in this area. During EAC calls, grant staff discussed with employers their interest in providing more of these opportunities for students and in follow-up emails shared with employers the DCCCD’s guidelines for “external learning experiences,” which include internships, clinicals, cooperatives, and practicum experiences. Grant staff had hoped for more internships in the spring, particularly from large companies such as TI. They are aware that TI takes on many four-year student interns, so were hopeful that TI would be more involved. They

report interest among TI representatives in having interns, but the challenge is finding decision-makers from TI who are involved and can make this happen. Grant staff report six co-ops with ONCOR in the spring, interest from Lockheed Martin, one potentially from Bell Helicopter, and some other new companies. Generally, students expressed interest in internships. As one stated in a focus group,

I think during internships, you learn when you're doing it. You learn what the job has to do with things that you learn and what the job is made of. I like it because it is a way to kind of see if you really like the job, and also it works both ways—you get experience and you see if you like it. It is win-win situation. The only hard part is to get into internship.

This sentiment was repeated by many others. Though interested, few students are participating in internships or co-ops. Thus, to meet the goal of providing more students with internship experiences, grant staff will need to increase their focus on building employer relationships to offer opportunities for these interested students.

Workforce System Engagement

The progress for engaging with the workforce system has been slow. Grant staff did succeed in getting programs included on the eligible training provider list so that the programs could be points of referral from the workforce system and be paid for through WIOA. However, there is currently no formal referral process to get people from the workforce system to the college. There is no job developer at the seven Texas Workforce Solutions locations in their area who would do these referrals. As a result, the college has not seen many students from Workforce Solutions. Grant staff shared concerns that the work with Workforce Solutions has moved slowly. Many of the delays have been due to delays in paperwork and administrative approvals between the two systems. As of April, much of this activity was new, and it was not clear how this collaboration would work. The delays in establishing this relationship may be another factor that is impeding the progress with the veterans outreach.

PRELIMINARY OUTCOMES ANALYSIS: STUDENT ENROLLMENTS AND COMPLETIONS

As the data sharing agreements between Rutgers and Richland are still pending, we are only able to report on aggregate student numbers provided to us by Richland's Office of Planning, Research, Effectiveness, and Development.

Student enrollments in the VFWTP programs have not increased enough since the start of the grant to reach program targets. In the year before the grant was awarded, 184 students were enrolled in these programs. In the first year of the grant, 2014-2015, 186 students were enrolled in the program (excluding transfer students), and in the second year, 2015-2016, 231 were enrolled. Though the 2015-2016 numbers represent a 24% increase over the previous

year, they are short of the more ambitious numbers set in the proposal. The lack of a more substantial increase in the number of students enrolled is a concern for the project and a reflection of some of the issues raised in earlier sections, particularly on student recruitment; preliminary data suggests that the current completion numbers are well short of the ambitious targets provided in the Project Narrative. Table 2 summarizes the characteristics of students in VFETP programs.

The composition of students in VFETP programs remains largely the same. Although a major goal of the grant was to increase the number of veterans taking advantage of these programs, the proportion of veterans enrolled in these programs has not meaningfully increased. This lack of change is consistent with the difficulty the college has encountered in recruiting veterans, as previously discussed. Student demographic characteristics including race/ethnicity, age, and gender have remained largely similar over these years.

Table 2. Characteristics of Students in VFETP Programs

	2013-2014	2014-2015	2015-2016
Race/Ethnicity			
White	39.1%	33.3%	39.0%
African American	13.0%	14.5%	14.3%
Hispanic	28.3%	31.2%	22.5%
Asian	11.4%	14.0%	19.0%
Other	3.3%	2.1%	0.4%
Not Reported	4.9%	4.8%	4.8%
Age Group			
<18	15.2%	15.1%	5.6%
18-21	19.0%	22.6%	22.5%
22-25	17.4%	17.7%	16.5%
26-30	20.1%	18.8%	16.5%
31-40	14.1%	12.9%	16.9%
Over 40	14.2%	10.8%	10.8%
Gender			
Female	16.3%	15.1%	14.3%
Male	83.7%	81.7%	85.7%
Low Income (Pell Eligible)			
Yes	28.5%	21.0%	26.8%
Veteran			
Yes	8.7%	3.8%	8.2%
Total	184	186	231

Source: Richland College Institutional Research

The grant will face a serious challenge in meeting completion and employment targets unless a revised strategy can be developed for spring 2017. The fall 2015 semester

yielded one certificate completer and two degree completers; in spring 2016, there were six anticipated certificate completers and five anticipated degree completers. Including new instructors and traditional program students, the program has passed 22 on the NIMS Machining I Job Planning, Benchwork, & Layout I test and 59 on Measurement, Materials, & Safety I. No electronics students have sat for the ISCET exam. Timing is a major challenge in this case; the new labs and equipment, which are reported to be a draw for students, have been open for business for only one semester so far. Meanwhile, certificate programs take a minimum of two semesters, and the AAS degrees take a minimum of four. With this in mind, the spring of 2017 cohort will be the last group that will be able to complete the program before the end of the grant period, given the current structure of the grant programs. Success with enrolling greater numbers of students and supporting these students to completion will be essential. This approach may also need to be combined with other strategies to build more pathways through these programs, such as continuing education.

Continuing education programming provides an opportunity to enroll additional students and build pathways to the manufacturing programs. Additional students enrolled and completed a continuing education program in manufacturing. In the fall of 2015, the program began offering short-term continuing education for workers affected by layoffs at Kingsley Tools in Garland. Approximately 30 displaced workers, mostly non-native speakers of English, will get a college certificate and qualify to take the NIMS tests. The students were unable to pursue degrees or certificates without first demonstrating English, reading, and writing proficiency, so Richland provided ESL/ESOL classes and interpreters, and the classes are run as non-credit through the Continuing Education program. This format was different from the way that the rest of the program had been run via credit-bearing offerings. However, if the program successfully places these graduates, it could create inroads with local businesses to place other program graduates and increase the number of completers. These students will be counted as participants in the TAACCCT grant, although they enrolled in non-credit programs; in the future they can petition for credit or complete the new PLA process once it is developed. More enrollment in Continuing Education courses like this one may help the college meet their grant goals of serving students while the credit programs are implemented and refined. Further, continuing education programs can provide an entrance point into a manufacturing career pathway that can be linked to the college's credit programs.

Although not a goal of TAACCCT, dual enrollment students are a potential pipeline for future enrollment in the grant programs. There is a strong dual enrollment program in place at Richland, which has already produced 26 students who now have completed one of eleven skills tests that are part of NIMS I credentialing. These students are not a formal part of the TAACCCT program but have an established relationship with it, and this can serve as a bridge to future enrollment at Richland. Focusing efforts to recruit from this population could yield returns for the program in the future beyond the TAACCCT grant.

NEXT STEPS

This first interim evaluation report is intended to provide feedback on the early implementation of grant activities to allow for mid-course corrections. With this goal in mind, this section discusses recommendations for on-going implementation of grant activities. This section also provides a preview of upcoming evaluation activities.

Recommendations for Implementation

Based on these findings, we have several recommendations for the college to consider in the ongoing implementation of grant activities:

- Continue to build on teamwork among program faculty by
 - working actively to integrate the new manufacturing faculty hire into a collaborative role in program leadership, where possible.
 - using student referrals and shared meetings with employers to more actively integrate the Navigator into the grant team.

- Continue to build on the momentum and excitement of the new lab space and work to translate this into increased student enrollment and employer engagement by
 - continuing to host open houses for prospective students and community members.
 - continuing to find ways to bring employers into the spaces as often as possible.

- Finalize curriculum reform and ensure the value of certificates, degrees, and credentialing by
 - continuing the push to get programs through the DCCCD processes.
 - considering continuing education as a way to get programs started while their credential approvals are pending.
 - implementing current plans to work with consultants on SCADA and CTA.
 - investing more attention in marketing industry credentials to employers.

- Clarify the role of the Navigator by
 - ensuring sufficient emphasis on recruiting students.
 - creating a more consistent role in working with employers.
 - clarifying how the Navigator role fits in with the STEM advising center team.
 - ensuring that all program students have increased contact with the Navigator through referrals.
 - ensuring that the Navigator focuses on recruitment and placement needs and not for any functions other than those originally outlined in the grant.

- Invest significant attention to improving student recruitment by
 - educating students, parents, and the public about the industry.
 - increasing program-specific marketing efforts.

- continuing to explore mechanisms to reach out to veterans.
 - ensuring that presentations of program sequences/semesters are realistic.
 - expanding information on the program website to include more detailed information about credentialing, jobs, and career pathways.
- Strengthen and build on employer engagement by
 - trying new strategies to meaningfully engage employers at EAC meetings.
 - developing a system to coordinate employer outreach across actors at the college.
 - developing a greater number of internships.
 - hiring adjunct instructors from industry and finding new ways to connect students directly with employers in a course environment.
- Build relationship with the workforce system by
 - clarifying a referral process for workforce system participants.
 - identifying opportunities to share information.
- Critically, increase efforts to meet grant outcome targets by
 - focusing efforts on boosting student enrollments
 - identifying specific strategies to reach completions during the grant period
 - considering continuing education as a way to bring more non-traditional students into the program and mapping pathways for them to credit programs.

Evaluation Preview

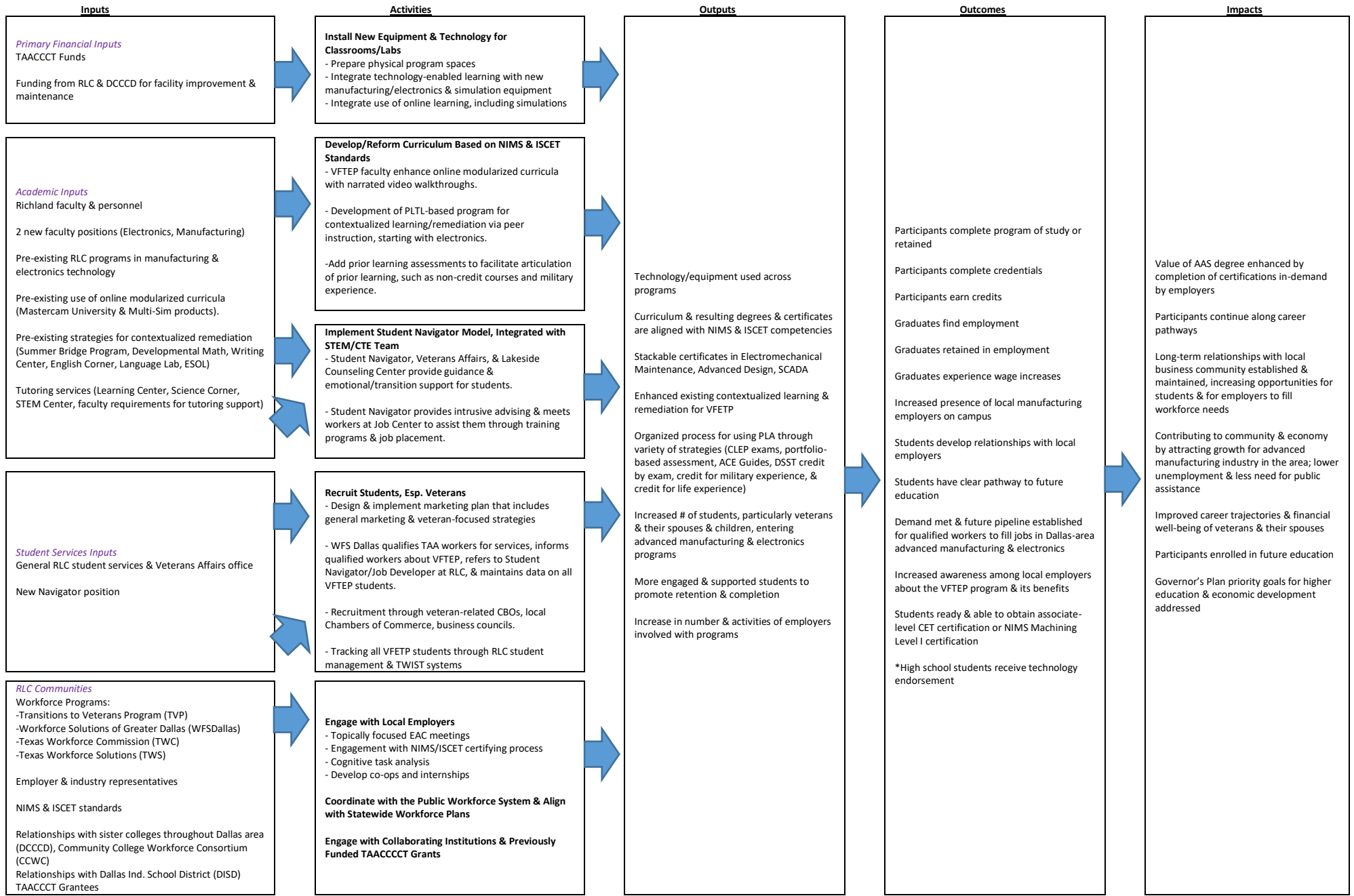
In the coming year, the EERC team will continue to collect data regarding implementation activities and outcomes through site visits, interviews, focus groups, participant observation, and document reviews. In addition, the EERC team will launch a new phase of research that delves more fully into the employer and student perspectives:

- (1) Employer studies. Building on observations of the EAC, document review, and our examination of the Dallas Metroplex context, the EERC team will begin reaching out to employers and representatives of the workforce system directly to participate in 30-minute interviews. These interviews may be conducted via telephone or in-person during one of the EERC visits to Richland. The interviews will inform the development of an employer survey to go to all EAC participants. These surveys will examine employers' satisfaction with their engagement with the program, their perceptions of the quality of the programs, and their experiences with students from the program.
- (2) Student studies. Building on student focus groups from year 2 and the pilot student surveys, a broader student survey distribution is planned for the fall of 2016 and spring of 2017. These surveys will examine student perceptions of the program, including satisfaction with the program experience, outlook for the future, and any challenges they may have experienced. These surveys will be distributed online.

(3) Quantitative analysis. The process of obtaining the formal data agreements between Richland and Rutgers is in its final phases; in the coming year, we will begin to work with individual data from the college after the agreements are finalized.

In all of these endeavors, the EERC team will continue to work with the Richland team to identify opportunities for study, address emerging topics of interest, and ensure that the timing and method of study are minimally burdensome to respondents. We look forward to continuing our collaborative relationship in the coming year.

Appendix 1. RICHLAND COLLEGE (RLC) TAACCCT EVALUATION LOGIC MODEL: VETERANS-FOCUSED ENGINEERING TECHNOLOGY PROJECT (VFTEP)



* Not in DOL grant application but a college goal of this project. High school students enrolled in dual credit option are not tracked by the evaluation.