Colorado Helps Advanced Manufacturing Program

Year One Report

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CHAMP

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SMLR was originally established by an act of the New Jersey legislature in 1947 as the Institute of Management and Labor Relations (IMLR). Like its counterparts created in other large industrial states at the same time, the Institute was chartered to promote new forms of labor–management cooperation following the industrial unrest that occurred at the end of World War II. It officially became a school at the flagship campus of the State University of New Jersey in New Brunswick/Piscataway in 1994. For more information, visit smlr.rutgers.edu.

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INTRODUCTION

The Colorado Helps Advanced Manufacturing Programs (CHAMP) is a United States Department of Labor (USDOL) Trade Adjustment Assistance Community College and Career Training (TAACCCT) funded grant intended to facilitate the redesign or creation of degree and certificate programs that respond effectively to the needs of the 21st-century manufacturing sector. Under the grant, academic institutions partner with manufacturing industries to develop and/or refine academic programs that can meet changing employer requirements and more quickly and efficiently prepare and credential displaced workers. Strategies to be used include the involvement of industry and workforce partners, credit for prior learning, articulation to four-year institutions, and the establishment of campus navigators to support and assist students.

The CHAMP consortium of nine Colorado colleges includes Aims Community College (AIMS), Community College of Denver (CCD), Emily Griffith Technical College (EGTC), Front Range Community College (FRCC), Lamar Community College (LCC), Pikes Peak Community College (PPCC), Pueblo Community College (PCC), and Red Rock Community College (RRCC). Metro State University – Denver (MSU) is also participating and has been designated as the four-year university to which students can apply CHAMP credits toward earning a bachelor's degree in engineering.

Over a hundred people are involved in ensuring CHAMP's success, including faculty involved in curriculum development and teaching, project staff hired at the consortium schools, and industry and community members involved in CHAMP-related committees, e.g., Advisory and Leadership. Coordinating the rollout of CHAMP is the Leadership Committee, whose 30 members represent the colleges in the consortium, industry employers, trade groups, workforce centers, and government. The consortium-wide Advisory Committee consists of 26 members, including industry partners, members of the Council for Adult and Experiential Learning (CAEL) and regional Colorado Workforce Development Centers (CWDC), and representatives from each of the consortium colleges. Each of the aforementioned committees have established working subcommittees that focus on an array of topics and activities: credit for prior learning, instructional design, massive open online courses (MOOCs) and specific program redesign groups (e.g., Electromechanical, Engineering Graphics, Machining and Welding. Additionally, the project leads and navigators have their own respective workgroups to discuss implementation issues and exchange ideas and resources.

This report focuses on the four principal goals of the CHAMP project and summarizes the progress made to date across the nine colleges in the consortium. The four principal goals of the CHAMP project are to 1) build on Colorado's existing and emerging manufacturing sector

partnerships and career pathways work to develop an employer-driven curriculum, 2) increase the use of technology to accelerate training and reach a broad audience, 3) redesign the current Colorado Community College System model for credit for prior learning to accelerate students' progress toward a CHAMP certificate or degree, and 4) develop latticed certificates and stackable credentials through the establishment of transfer agreements between the community colleges and the Metropolitan State University of Denver (MSU).

This summary of CHAMP activities utilizes qualitative data collected during the first year of the grant and focuses primarily on process—the development and implementation of grant activities. Future annual reports will use both qualitative and quantitative data to examine process issues as well as outcomes, e.g., student retention and completion. Additional reports will be generated that focus on specific aspects of the CHAMP program, such as the use of credit for prior learning and the use of online and hybrid courses.

METHODOLOGY

EERC's qualitative evaluation activities have focused on collecting process data to summarize the first-year activities and implementation processes of the CHAMP project. The five principal sources of information used in this report are as follows:

1) **Quarterly Reports**: EERC sends out an electronic survey every quarter to each college. The surveys ask for numeric and narrative responses about project activities. A review of these reports indicates that there is inconsistency in their completion and that, at times, recorded data contradicts data collected from other sources.
2) **Project Lead Surveys**: Project Leads were asked to complete a survey about the first academic year (2013-2014) progress on all facets of the CHAMP grant. The nine consortium colleges returned this survey within the allocated time.
3) **Navigator Survey**: A new monthly survey instrument integrating lessons learned from TAA Rounds 1 and 2 was developed for the career navigators to report on student engagement and other CHAMP activities. The instrument was launched as a year-to-date report for calendar year 2014. All schools responded with the exception of EGTC, which does not have a navigator.
4) **Basecamp**: Basecamp is a project management Web portal that allows participants to communicate and post updates and supporting materials. The various CHAMP project teams have created Basecamp sites dedicated to ongoing communication within the consortium. Discussion threads and posted documents from subcommittees and workgroups were reviewed and analyzed for this report.

5) **Project Lead Interviews**: EERC team members interviewed each of the consortium project leads, and in some cases, other members of the CHAMP project team. Information was analyzed and synthesized qualitatively.

For the purpose of this report, information is structured according to the four primary goals outlined in the grant proposal. The first goal is to build on Colorado's existing and emerging manufacturing sector partnerships and career pathways work to develop an employer-driven curriculum. This will be operationalized by examining each college's progress in building industry/employer relationships, utilizing industry/employer partnerships—including the offering of internships—engaging industry/employers in the process(s) of purchasing equipment and/or designing or redesigning curriculum, and offering faculty professional development that will keep them highly trained in advanced manufacturing aspects.

The second CHAMP goal is to increase the use of technology to accelerate training and reach a broad audience. This will be analyzed by exploring the types of equipment and technology purchases that the college attained, the processes for implementing these additions, the process of designing/redesigning courses in online and hybrid formats, and the creation and use of MOOCs.

The third goal focuses on redesigning the current CCCS model for credit for prior learning to accelerate students' progress toward a CHAMP certificate or degree. Since this particular element of the grant is still in the early stages, individual colleges are not yet implementing the redesigned model. However, much work is occurring throughout the consortium to develop this goal, such as committee activities and strategies for implementing a credit for prior learning process, including for the subsector of veterans, an important element of the CHAMP grant goal.

CHAMP's fourth goal is to develop latticed certificates and stackable credentials through the establishment of transfer agreements between the community colleges and Metropolitan State University of Denver (MSU). This goal will be considered for each college by exploring the avenues for articulation and credential stacking that the college has implemented to date or is in the process of implementing.

In addition, this report discusses other grant targets, including the staffing of a navigator and student recruitment activities. Finally, future evaluation efforts will be outlined.

PRIMARY GOALS

GOAL 1: COLLEGE-INDUSTRY PARTNERSHIPS

The primary purpose of the CHAMP project is to realign Colorado's higher education manufacturing certificate and degree programs with industry's current and anticipated needs. To achieve this goal, close collaboration between the consortium colleges and local industry is critical to facilitate the integration of industry standards and state-of-the art knowledge into course curriculum as well as to foster the establishment of internship opportunities that enable students to gain hands-on learning.

In the first grant year, the consortium colleges have established relationships with over 30 industry partners throughout the state. However, each school is at a different stage of building partnerships. The examples below indicate how each college is strategically engaging industry to best benefit their CHAMP program(s) and students.

PPCC has "hit the ground running" with their engagement of industry in the CHAMP grant. A large part of this is the result of prior faculty connections with regional businesses and the ability to leverage these relationships as they launch CHAMP activities. For example, the college received a substantial donation of equipment from one of its partners that is closing a plant in Colorado Springs.

Although equipment donations are not common across the consortium as a whole, RRCC has also received donated equipment from industry partners. RRCC feels that it has two distinct groups of industry partners: those actively involved in the advisory council at the college, who also have been involved in equipment purchase decisions and curriculum decisions, and those who are "just keeping an eye on what [the faculty member] is doing" regarding curriculum development and have not yet committed to ongoing engagement in CHAMP activities.

Currently, RRCC's certificates are not an employment requirement within advanced manufacturing. As a result, industry has questioned the benefit of RRCC's program credentials. At the same time, employers agree that a more highly trained employee benefits their companies. It is yet to be seen whether a certificate holder will have an advantage over a non-certificate holder in terms of employment.

> If somebody came in and took a class and didn't earn a certificate, it probably—from what I'm hearing, they [the employers] probably really don't care. They're just getting somebody who just had some professional development training and who could do a better ... has higher skills out at their workplace.

However, some employers are "seeing down the road that it [credentials] could serve their own self-interest." This is driving employer interest and prompting some employers to work closely with faculty members who are designing the curriculum and purchasing equipment.

In the spring of 2014, FRCC was unique in engaging its industry partners to take an active role on interview panels established to select the Employer Outreach Coordinator and the Navigator. Their participation on these panels has increased industry buy-in and fostered their active engagement with the outreach coordinator and navigator. FRCC also enlisted the help of its industry partners in researching and designing the equipment purchases and layout of the college's new Advanced Technology Center. Industry representatives were "very instrumental in the whole development process" of the center.

PCC has developed a strong relationship with its local workforce center, which has resulted in close ties with industry. On several occasions, representatives of the workforce center have taken PCC's project lead and navigator to meet with employers and industry representatives. This has helped PCC build relationships with industry and has helped its personnel better understand employers' hiring, requirements, and shop floor skills. As the project lead noted, this has also created a strong foundation for program design:

> One of the key things for me … was the person at the workforce center that we work closely with was instrumental in taking, literally taking … both of us to the employers so we could get acquainted, face-to-face, with the HR staff, with the CEO, with the chief operating officer, with the chief and superintendents that were key, that had hiring needs and explained their expectations and their culture to us so we could relate that information, namely through [the navigator] in the navigation process, to our students. So what to expect, what different employers expected, what the culture was like? And then so we could also address that in the curriculum that we're building to ensure that we are meeting soft skills expectations and behaviors and good habits that they would like to see as well as the trade skills they're actually doing in manufacturing work.

MSU has also visited business sites and included its industry partners in advisory meetings, something common across the consortium.

To meet technological and industry changes and to equip students with the knowledge and skills needed by employers, it is important that industry representatives are active in reviewing existing curriculum and course requirements as well as contributing to discussions about redesign. Across the consortium, colleges have had different degrees of success with these collaborations.

Both FRCC and RRCC have established active industry participation. FRCC meets quarterly with its partners to review the curriculum development, facility design, and equipment purchases. FRCC's partners have also acted as subject matter experts in the development of specific learning outcomes. Similarly, industry representatives sit on RRCC's advisory committee and have assisted the college in choosing what equipment it should purchase for its advanced manufacturing programs. LCC has close relationships with industry partners in its community, and their faculty member comes from local industry as well. Given the small size of the community, the two primary industry representatives are close partners with LCC, working alongside the college and helping wherever needed.

At the same time, when industry does provide input, colleges needs to be attentive and responsive. For example, at the January 27th Machining Advisory meeting representatives from three local businesses raised their concerns about the need for individuals seeking work to have not just subject matter skills but also what have been labeled "soft skills." As one of the reps stated, "if potential employees are 'educable (sic)' and reliable, the employers will hire them." They urged colleges not only to train students in the subject matter of their field but also to develop curriculum and provide work-life skills training. Nearly all of the consortium colleges are currently adding soft skills training to their curriculum. PCC has devoted an entire tier of their stacked credential program—their Production Technician certificate—to soft skills. EGTC's entire pre-manufacturing certificate is centered predominantly on soft skills and safety.

Despite their successes, colleges have also experienced some challenges in recruiting industries and/or engaging them as full, active participants. For example, EGTC's newly hired faculty member is still in the process of identifying possible industry partners and cultivating them to engage actively in CHAMP-related activities. To date, the college has enlisted one welding company, which is now active on the EGTC advisory committee and works with the welding program, The college, however, is seeking to engage additional industry representatives in the CHAMP project.

AIMS reports that it is seeking to "beef up" industry representation on their advisory committees. The construction committee has solid industry representation, but representation from CAD and industrial technology companies is much weaker. Thus far, the college has been "having a hard time getting a good turnout" of industry representatives at their advisory meetings. As a result, they are planning to employ a dedicated outreach person who will focus on strengthening the employer relations for these two programs.

To facilitate communication with industry partners, consortium schools have begun to send out quarterly emails that provide updates on CHAMP-related activities, accomplishments, and plans. While helpful, these updates cannot replace a bi-directional active exchange of ideas and

information. The participation of industry representatives on advisory committees would be ideal; however, project leads report that time has emerged as a major factor limiting industry reps' active participation in these meetings and on working groups. While every company is unique, attendance at CHAMP meetings can be a strain on a business rep's time. This is especially true for small firms with limited personnel.

Echoed throughout the consortium is the belief that employers tend to engage when a direct if not an immediate benefit is perceived by them. For instance, the colleges with new state-of-the art equipment or facilities have reported a "turn-around" in the attitudes of employers and a new level of engagement from industry representatives. Once employers perceive a benefit to them, such as highly trained future employees or available up-skilling for incumbent workers, they engage more frequently and/or consistently. It is therefore expected that, over time, other colleges will see an increase in industry buy-in and participation.

Internships

The CHAMP proposal includes internships as a critical strategy both to give students field experience and to develop their employability skills, encompassing areas such as teamwork, time management, and attendance. A grant target was set for 300 students to be placed in internships by the grant's end. However, since it is still very early in the grant period, no CHAMP students have yet participated in any internships.

The task of procuring internship opportunities has been assigned to the navigators at all but two of the nine consortium colleges, MSU and PPCC. MSU has a dedicated internship center that serves the entire university. The engineering technology program at MSU also has an internship coordinator dedicated to establishing opportunities and preparing students for them, e.g., professional attitude and behaviors. At PPCC, the internship responsibilities will most likely be part of the task set of the Program Manager. In both these cases, the navigators will work closely with their colleagues to ensure the establishment and success of CHAMP internships.

To date, even without students' participation in internships, there has been some success in laying the groundwork for them. In addition to identifying potential sites for internships, CHAMP project staff have been working with faculty and industry to identify specific job functions that would be appropriate for student interns. A number of navigators are working with their regional workforce centers to gain additional information about local industries and/or to leverage the workforce center's existing partnerships to develop internship opportunities. For example, this fall, PPCC will be participating in a Manufacturing Day event sponsored by El Paso County's workforce center, an event that will allow PCC to inform companies about its programs and recruit potential internship partners.

PCC has had one employer actually come to the college specifically to ask if it could offer internships for students in industrial maintenance. In addition, several employers have identified their interest in setting up internships for PCC's electromechanical students. The college and WFC are now working on necessary MOUs/contracts for these electromechanical internships.

Internships for PCC's certificate programs in welding and machining, however, are proving more difficult to secure. This is in part a result of the high injury risk rate in these occupations and in part the result of the high costs of the equipment and materials that would be entrusted to an intern, posing a financial risk to the company if an intern does not execute a job properly. As a result, employers in these two fields have been reticent thus far about bringing on interns. However, PCC's navigator noted that some employers are beginning to reconsider. For example, a manufacturer that was previously uninterested in offering internships "had a change of tune and is willing to do some welding and machining internships" for PCC's programs. The college is hoping that this trend will continue and that more internships can be secured in the near future.

Concurrent to identifying willing companies, the CHAMP colleges are exploring various models for their internships. For example, CCD is promoting ten- to twelve-week internships to its industry partners, and PCC, sensitive to the time costs for companies supervising interns and some of the limitations that smaller companies have in providing a variety of learning experiences, has been discussing rotating internships among a number of small manufacturing employers. The creation of these collaborative internships would give students diverse experiences and learning opportunities as well as reduce the impact of an intern on any one company. Several of the colleges do not require internships for their CHAMP programs and do not plan to, although internships are available on a voluntary basis if students wish to pursue them.

As noted above with respect to participation advisory boards and curriculum development, employers seem to need to see a benefit to engage in the education of interns. When employers realize that interns are trained on cutting-edge equipment and have the necessary soft skills to participate successfully in a professional setting, they become more inclined to offer internships. As PCC found with the employer that "came around," industry representatives are likely to change their minds when they see quality students exiting programs.

Professional Development

The CHAMP redesign and implementation process requires faculty with current and relevant manufacturing knowledge and skills. This can be achieved by ensuring that current faculty participate in ongoing professional development workshops/conferences and/or recruiting new

faculty instructors. MSU recently hired instructors with industry experience to join its teams. EGTC needs to fill its pre-manufacturing opening to finish that program's redesign process. The new instructor is currently finishing the development of courses to offer the program this fall. FRCC is seeking to hire new instructors who have recent work experience or are currently employed in their field.

Several faculty members across the consortium have attended or are attending specialized training for new equipment purchased under the grant. These trainings help faculty to learn about industry innovations and changes and then conceptualize needed curriculum, as well as how to best integrate new equipment into everyday learning for students. PCC brought in the National Institute of Metalworking Skills (NIMS) and had all CHAMP faculty accredited through this training. Faculty credentialing enables faculty in turn to credential students in-house after completing the redesigned curriculum. This eliminates the time and cost of students going elsewhere for credentialing.

GOAL 2: TECHNOLOGICALLY ADVANCED EDUCATION

Advanced manufacturing relies on technology. It is therefore critical that state-of-the-art equipment is available on which to train students. DOL imposed a March 2015 deadline for all renovations, installations, and construction to be completed. This deadline was intended to ensure that grant-funded labs would be available for use during most of the grant period.

An 18-month period for planning, purchase, installation, and/or capital improvements, however, is not always realistic or sufficient. For example, in February 2014, RRCC received approval to undertake facility renovation. Work began quickly, and retrofitting of the identified space was completed in May 2014. In July, equipment orders went out. Most of the equipment, however, will not be delivered until early to mid-fall 2014. Equipment installation will take an additional number of weeks, with the exception of a piece of specialty equipment—a 5-Axis machine that will not be fully installed until March 2015. To give faculty time to train on the new machine, courses that utilize the 5-Axis machine will delay that content until mid- to late spring 2015.

CCD has ordered a large amount of equipment as well. Instead of delaying students in entering the program, they have chosen to start students on the old equipment and transition them to the new equipment once it is fully installed, which is anticipated to be mid-January 2015. Students are excited at the proposition to learn the hands-on method and then apply their knowledge to the new high-tech equipment. CCD was able to allow students to start on existing equipment because it had the space to maintain the old equipment while setting up the new equipment at the same time in a different location. Other colleges, such as RRC, do not have the capacity to do so, and equipment delays have a significant impact on course implementation.

Despite equipment and installation delays, most colleges have indicated that their renovations are finished or will be completed by fall 2014. FRCC has already finished its Advanced Technology Center and has all but one piece of equipment purchased and installed. The center has made a huge difference for FRCC:

> The impact of that on the community and the industry has been huge. It proved to our industry partners our commitment to trying to solve a need for them and that we were going to do it on a very quality level … when they came and saw our open house and saw what was there, more and more have jumped on the bandwagon to help support it, so ... and the community as well, so impressed. Students, as we tour … are walking out just going "wow!" So that's been a very impressive thing that couldn't have happened without the grant.

EGTC did not purchase any manufacturing equipment for their CHAMP programs, as the college's pre-manufacturing certificate is centered predominantly on the development of soft skills and safety in manufacturing. However, they did purchase a mobile laptop cart and laptop computers for students. EGTC's welding program already had all necessary equipment.

Redesign of Courses

One of CHAMP's principal goals is to respond to changes in the manufacturing sector by training a skilled workforce that can meet emerging employer needs. The objective was to complete all course and program redesigns in time so they could be launched in the spring of 2015. Most colleges did not initiate their CHAMP activities until the end of the 2013 calendar year, and most courses and/or programs had to undergo review by academic standards committees; therefore, a great deal of work occurred in a relatively short time frame. Some faculty and project teams expressed concern about the tight schedule; however, most colleges feel that they will most likely be able to meet the deadline.

In the first grant year, colleges reviewed existing program courses with the assistance of industry reps and/or sector advisory committees. The results of these reviews yielded 267 courses needing redesign or actual creation. To guide the process and ensure that the final deadline was met, sub-phase timelines were created. For example, 60 percent of the courses to be redesigned were assigned to single faculty authors. For these courses, a deadline of June 2014 was set.

Some colleges have already completed their redesigns for at least one portion of their CHAMP program(s). To enable students to begin to enroll in their respective programs, most schools started with changing foundational certificate courses. The remainder of the curriculum redesign will follow in a rolling progression.

PCC, for example, has completed the hybrid redesign of its 28-hour electromechanical certificate and is currently offering it in the fall of 2014. It is still working on the remainder of the electromechanical certificate beyond the 28-hour portion and will be offering those courses in the spring of 2015. This rollout has been planned to enable continuation if the spring for fall students if they so wish. The machining certificate at PCC is also planned to be fully redesigned to a hybrid format by the spring of 2015. Instead of purchasing the equipment pre-assembled, which was more costly, or waiting to start the cohort until the equipment can be assembled, PCC decided to include assemblage as part of the "the actual learning experience … to build those trainers as part of the class activity." Invention resulted from necessity, with the knowledge that assemblage is an excellent learning opportunity. It has actually prompted PCC to adopt the process for future cohorts. Thus, before the end of the program, the trainers will be disassembled by the current class, ready for the next cohort to assemble them again for use.

RRCC's foundational course, Quality Control, was already being offered at the college. Two stackable courses, equivalent to two additional certificates (QC level II and QC level III), are currently being created. The Swiss Turn intro, Swiss Turn level I, and Swiss Turn level II will be developed next. Finally, RRCC's instructional designer is working with CCD's lead in developing a 5-Axis course. Once this course is completed, RRCS will launch it.

EGTC was able to redesign its welding program courses over the summer, and the pre-manufacturing program courses are on track to be completed by October 2014. EGTC does not have an instructional designer, so instructors redesigned their own courses.

In addition to developing substantive content, CHAMP requires that all courses follow a standardized format that identifies the topics that the student must successfully master as well as specific educational competencies, "the Master Shell." The shell must include all course materials, e.g., syllabi, lecture notes, learning objectives, activities, and assignments. At the same time, the expectation is that individual professors will continue to use their own styles to teach the course and develop additional course materials or provide supplemental content within the confines of the course parameters. These more complex redesigns were given a due date of October 2014.

In some cases, faculty and industry reps determined that agreed-upon program and course learning objectives did not fit into pre-existing courses. As a result, new courses had to be developed. November 2014 was set as the due date for these new courses. RRCC and CCD realized that they would not be able to meet this deadline for the aforementioned 5-Axis and Swiss Screw classes. They were given an extension to December 24. CCD's course development, however, has been further pushed back because of delays in the construction of their new Advanced Manufacturing Center building and the installation of needed equipment that must

then be coordinated with the curriculum. CCD therefore does not anticipate that its courses will be ready before April 2015.

Several other colleges have also had delays in equipment approval or renovations, which have caused delays in curriculum development. RRCC has encountered serious delays because approval for equipment purchases came later than expected. In addition, when the purchased equipment was delivered, it could not be installed because needed facility renovations had not been completed and cannot be done for safety reasons when students are in the building.

AIMS also had delays in renovation approval. To move forward with its programs, it made some adjustments to existing campus space and decided to forego renovation. Instead, they will use the money for additional equipment purchases. LCC also reported that it took "a long time" to get final approval for renovations, which has been frustrating given TAA grant deadlines. Delays in renovation and equipment purchase/installation have a snowball effect. As many of the equipment-related courses cannot be designed/redesigned without equipment in place. Faculty must be trained on the equipment and fully understand its operation before they can successfully create curriculum content.

The input of industry partners and various trade organizations has been extremely helpful in curriculum design/redesign. For example, the American Welding Society (AWS) suggested to the Welding Advisory Committee that AWS standards and specific content be added to the curriculum. As a result, EGTC is now offering AWS School Excelling Through National Skill Standards Education (SENSE) courses.[1] The welding group has also worked with the Iowa Advanced Manufacturing Consortium in adapting some of their best practices included in the group's OER resources into the CHAMP-funded welding curriculum.

At the same time, some schools have experienced difficulties integrating industry standards into pre-existing courses. This has been an issue at both RRCC and FRCC in terms of National Institute of Metal Working Skills (NIMS) competencies. FRCC has responded to this challenge by hiring two professional curriculum designers who will work with them to combine NIMS requirements with current program competencies.

To ensure public online access, the U.S. Department of Labor requires that all grant-funded redesigned or newly developed courses be posted on the Open Educational Resource (OER) platform. The timeline for the posting of courses onto the OER platform is January 1, 2015 so they can be used during the spring 2015 semester. In addition to some of the course redesign delays cited above, a number of the colleges are also experiencing difficulty in completing the

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[1] The AWS SENSE Program is a comprehensive set of minimum standards and guidelines for welding education programs.

transformation and uploading of courses to the OER platform. Questions have also arisen about proprietary information and how best to deal with it:

> Every single course that is taught at PPCC is centered around proprietary materials, generally a textbook to drive the course. We have, however, made great strides in this area by restructuring the framework of our thought processes and capturing individual components of a course (that a particular instructor designs on his or her own) and identifying it as OER material that can be shared.

Beyond textbooks, some of the colleges are facing the challenge of how to design a course for OER that is centered on a specific piece of (proprietary) equipment. Training manuals, videos, and even the software necessary to operate the machinery are generally copyrighted by the manufacturer and therefore cannot be used in OER. RRCC has developed some creative means of working around these issues—referencing the material (but not including it), taking some screen shots, providing examples of exams and homework assignments, and writing curriculum and course support "where somebody else can pick it up and say 'insert your software here,' 'insert your piece of equipment here,' but the rest of it … is the skeleton and how to teach this class." Additionally, RRCC is sending its faculty member to the Swiss Turn manufacturer for a week-long training, after which he will return and develop the course. These strategies will allow the RRCC courses to be published on the OER platform without violating copyright.

As of June 2014, 125 courses remained to be designed/redesigned. This figure includes courses still needing to be loaded in the OER format and most likely underestimates the progress made in the Master Shell course construction. For example, by July 2014, FRCC had finished all but two of their 16 redesigns by the summer but had not uploaded any onto OER.

Online/Hybrid Course Offerings

To make CHAMP more accessible to prospective students, appropriate courses are being redesigned for hybrid or fully online instruction. CCCS defines hybrid courses as having a mix of classroom/lab/field and online instruction, with between 30 percent and 70 percent of instruction online. In contrast, a designated online course requires that over 71 percent of course time be provided online.

The DOL has promoted (and members of some college advisory committees have encouraged) the expansion of online and/or hybrid classes in manufacturing fields. Not all subjects, however, lend themselves to online content. An instructor at FRCC commented, "Machining does not lend itself to online courses since so much learning must take place in the shop." Other consortium members have also spoken about the challenge of developing hybrid and online

formats. PPCC project staff indicated that their CAD/MAC/ELT department chair found that he had to reduce his teaching time so he could reformat courses to meet the charge to increase hybrid offerings. LCC encountered difficulty in securing good instructional videos for their online courses. They are now contemplating creating their own videos.

AIMS, on the other hand, is trying to put as much content as possible online, building on the success that the college had in the first round of the TAACCCT grant. The project lead at AIMS noted the positive effect that online courses had on enrollment for TAA COETC or Round I and hopes that the same pattern will hold for CHAMP:

> We're modifying them into the hybrid and trying to put several of them [fully] online as well because we found that really worked well under the Round 1 grant of putting classes online. It just really increased enrollment, and I think the students liked those classes. So that was the idea here. We were already teaching the program, but we want to beef them up and put them online, make the choices easier for students.

The transformation of courses to hybrid versions involves rethinking of pedagogy, including the most effective use of class time. PCC's project team has observed the beginning of a culture shift in their welding and electromechanics departments wherein previously reticent faculty have commented about the "benefits to be derived by well-developed and appropriate selected hybrid enhanced course content." This shift is evident in all of the CHAMP programs at PCC:

> [It] didn't happen immediately, but we're right now at a place where it is happening in all three of our programs that we're currently working, the welding, the electric, mechanical and the machining in unsolicited feedback to me on a regular basis, and the dean that we work for is absolutely insistent they're recognizing, appreciating, and voicing their appreciation of where they've come in a very few months.

Some of the courses in precision machining are highly complex, and there are few developed resources for online content. As a result, FRCC, PPCC, PCC, and CCD have joined together to secure "an online precision machining learning system and CNC machine tool simulation package for use in their credit and non-credit machining programs." In addition to the development of the learning system and simulation package, the colleges' joint RFP seeks a vendor who can train others in the operation of the system as well as provide annual maintenance for the system. Responses to the RFP were due September 30. Outsourcing the development and maintenance of this system, while more costly than the use of in-house resources, alleviates the strain on faculty time and the need to hire additional staff to expand capacity.

MOOCs: Design and Implementation

CHAMP is also incorporating massive open online courses (MOOCs) into its program offerings. MOOCs will allow hundreds of students at a time to progress through basic learning modules, facilitating their preparation for more advanced courses and, it is hoped, increasing the rates of academic success and program completion. The grant calls for three specific CHAMP MOOCs to be established: Basic Math, Employability, and Credit for Prior Learning. These MOOCs are being developed and monitored.

The math MOOC uses content from an existing course, MAT 108, and adds new transfer-level math content. The MOOC has learning modules, such as conversions, algebra, geometry, trigonometry, and statistics, that are contextualized to the field of manufacturing. Students do not earn credit for the math MOOC, but if they successfully complete it, they can sit for the challenge exam. Passing this exam awards them equivalency credits through the use of credit for prior learning toward a relevant CHAMP math requirement. The MOOC is not a prerequisite for the challenge exam, and students are not required to take it. However, it gives students a chance to brush up on their math skills before sitting for the challenge exam.

The math MOOC was launched June 2014 with an initial enrollment of 572 active participants. MOOC students were asked to complete a pre-test to gauge their knowledge. For the first cohort, the average grade was 90.5 percent. Two weeks later, the MOOC enrollment had risen to 649 active participants. Unique quiz submissions totaling 475 were recorded with an average of 85.9 percent. By the end of the course in August, 687 participants had enrolled, with only 50 officially withdrawing. Final grades for the students who completed the MOOC have not been received at the writing of this report; however, only 180 students are known to have completed the entire MOOC. This is a 26 percent retention rate. It is not known why so many students discontinued their involvement with the MOOC.

The development of an Employability MOOC was a direct response to industry commenting that it needs not only a technically skilled workforce but also one that understands how to work effectively in today's world—the "softer skills" of employability and professionalism. Employers are particularly concerned about individuals re-entering the workforce who need a refresher on basic workplace skills.

During the design phase of the Employability MOOC, Navigators explored the possibility of combining the content of the planned MOOC with their student success course material. Over time, they found that this was not feasible. The MOOC therefore remains a separate five- to six-week course, but it is one that navigators will encourage students to take to expand their job search and employability skills. PCC's workforce center has been helpful in the provision of material for the Employability MOOC. The MOOC was completed in August 2014 and, similar

to the math MOOC, includes case examples and exercises that relate to jobs in manufacturing. A soft test was successfully conducted in September. The Employability MOOC is now scheduled to be launched in October 2014. Results from the inaugural course will be available in December 2014.

The development of the Credit for Prior Learning MOOC will begin in October 2014 with an anticipated launch date of February 2015. This MOOC is anticipated to be a six- to seven-week course. Once the MOOC is finished, the MOOC subcommittee will work with the credit for prior learning subcommittee and with Council for Adult and Experiential Learning to develop protocols as well as training opportunities for advisers and faculty.

MOOCs cannot include proprietary material, such as materials related to job skills developed by groups like Goodwill Industries. Therefore, all MOOC content must be created in-house or collected from other public sources.

GOAL 3: CREDIT FOR PRIOR LEARNING REDESIGN

Another goal of CHAMP is to redesign the credit for prior learning policies and use within the system and state. Credit for prior learning protocols recognize and grant academic credit for the skills and knowledge that individuals have gained outside the classroom. Credits for prior learning are especially helpful for returning students who left school without graduating but have gained significant experience in the workplace since then. Additionally, credit for prior learning can be awarded for certain types of specialty training, such as military schooling. Receiving credits for prior learning can shorten the time that it takes to complete a certificate or degree program.

In 2001, a higher education student bill of rights was passed in the Colorado legislature.[2] The law stipulates, among other things, the establishment of a process for students to test out of core classes by successfully sitting for a challenge exam. In 2012, this directive[3] was amended to provide for credit to be awarded for prior learning. These higher education policies reflect the state's recognition of students' real-life experience. Since 2009, CCCS has awarded over 120,000 credits through assessment methods such as challenge exams and portfolios. Through the CHAMP grant, CCCS is working to revise and improve upon this policy and the use and acceptance of CPL in the state.

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[2] We could only find the original House bill number (HB01-1263), not the title of the final law.
[3] Again, we could not locate actual law, but the House bill that resulted in the amendment was House Bill 1072 (2012).

Credit for Prior Learning Subcommittee Activities

To review and revise the credit for prior learning (CPL) policy, grant administrators established the CPL Subcommittee (SC), composed of representatives from the consortium colleges, affiliates from CAEL, and industry representatives. The SC was created early in 2014 and first met in February 2014. They are tasked with reviewing and revising existing Colorado CPL policies and developing potential revisions to suggest to policymakers. The SC ensures that all suggested policy revisions are aligned with the Colorado Students' Bill of Rights (mentioned above) and reviews existing policies to ensure that they are aligned with it as well. Their work is being informed by research; in cooperation with CAEL, to date, the SC has spent a great deal of time examining the CPL policies and practices of other states and institutions.

In one of its first actions, the subcommittee created a vision statement about a proposed approach to CPL. The statement was meant to help define a purpose for the subcommittee going forward to serve as a guidepost for the members' actions and policy revisions.

> *A diversity of students can come to Colorado community colleges at various stages of their lives and careers and are able to validate the significant learning they bring with them, accelerating the process of reaching their academic and professional goals. College level prior learning is validated by academically sound and rigorous prior learning assessment methods.*

As a result of discussion at the subcommittee meetings and online collaboration, the SC has recommended several changes to the Colorado policies (System President's Procedure 9-42 and State Board Procedure 9-42). The changes will be presented to the board for review in December 2014.

The recommendations were aimed at revising the Board policies in alignment with the vision statement of the SC. Overall, the recommendations seek to improve the experience that students have with CPL and the process of CPL review. They included changes to the wording of the policy to ensure that the language focused on the students' learning and "learning experiences" and that the learning is related to the student's program of study. The changes further reiterated the statements of principle in the Students' Bill of Rights and made clearer the guidelines that institutions could potentially use to determine a student's prior learning. The SC also drafted an outline for a revision of the Prior Learning Assessment Handbook for faculty and staff at the participating schools. The revised PLA Handbook will contain information on what PLA is, standards for implementation, and an explanation of how students can benefit from PLA credit. This work will be continued in 2015.

The SC has also discussed efforts to inform the institutions about CPL options that are available to their students. To date, colleges have been using American Council on Education (ACE) credit review to provide their students with CPL credits, but the implementation differs between system and non-system schools and with respect to College-Level Examination Program[4] (CLEP) credit, between some two-year and four-year institutions. Moreover, the subcommittee found that many colleges were not making the availability of CPL options clear to their students. The committee assessed the existing policies, looked at how those options could be made more available to students, and tried to identify the barriers in the institutions that kept those policies from working.

In the second year of the grant, the subcommittee will begin formally meeting to develop the PLA Handbook. Additionally, to streamline the intake process for students who may be eligible for PLA credit, the SC plans to develop guidelines for a "portfolio" process whereby participating institutions will conduct a fuller assessment of a student's knowledge heading into college. The SC also plans to meet to discuss discrepancies between two-year and four-year colleges' treatment of how to transcript CLEP scores. The SC is also planning to develop crosswalk policies for granting credits for students' apprenticeships. Regarding the crosswalk file, the SC is discussing creating a larger committee to determine how the crosswalk ought to be revised, updated, and expanded. Later evaluation reports will look at this work.

GOAL 4: STACKABLE/LATTICED CERTIFICATES AND ARTICULATION

One of the goals for the CHAMP grant is the development of structures and mechanisms that facilitate students' latticing certificates and stacking credentials. While latticing is principally done within community colleges, the stacking of credentials generally involves articulation between community colleges and four-year universities. Consortium colleges offer a wide range of latticing opportunities and stackable credentials.

For example, AIMS has four levels of certifications within its industrial technology AAS degree, and all those credentials lattice into the machining programs at four consortium colleges. These certificates can also lattice into industrial maintenance at CCD or engineering technology at PCC. LCC's welding certificates can be lattice into any Colorado program that uses common course numbering. CCD's National Institute for Metalworking Skills (NIMS) intermediate machining technologies certificate can lattice into an AAS in either computer numerical control (CNC) manufacturing or CNC management. All of the colleges in the consortium will lattice their advanced manufacturing programs to MSU Denver's engineering degree.

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[4] CLEP is a College Board developed credit-by-examination program.

Students who earn community college credits may be able to transfer their college-level credits to a four-year institution. However, for the credits to count for a specific course—that is for the student to be exempt from the course at the four-year institution—the community college course must meet the recipient institution's standards for that course content. Transferring credits from a community college to a four-year university allows the student to start at a higher credit and often a higher course level at the four-year institution and often eliminates the duplication of courses and accelerates a student's progress toward a four-year degree.

Under the CHAMP grant, MSU has been identified as the primary four-year institution for student transfers. To date, several colleges have developed CHAMP-specific working articulation agreements with MSU (e.g., CCD and PPCC), and others are working on them. MSU has stated that it would like to standardize articulation agreements across the CHAMP consortium to ensure clarity and consistency. The hope is that agreements will address all facets of credit transfer and eliminate obstacles that might delay students' progress toward a four-year degree.

In addition to agreements with MSU, several CHAMP colleges have expressed interest in establishing articulation agreements with four-year institutions serving their specific regions. For example, PCC is looking to work with CSU Pueblo, and CCD is considering articulation with Regis University. In addition, both RRCC and CCD are interested in working with the Colorado School of Mines. In this case, credits or credentials earned in manufacturing might be the basis for new pathways within energy fields.

In its proposal, the CHAMP consortium indicated a grant goal of increasing the number of articulation agreements by 33 percent. Given the interest identified above, it appears that this goal will be reached. However, articulation agreements depend on CHAMP consortium colleges finalizing the learning objectives, course equivalencies, and competencies for all CHAMP-funded courses and programs. This has yet to take place across the whole consortium.

With respect to course equivalencies, a range of options is currently under discussion. These include a 1:1 match such that CAD 101 at a community college would be accepted as an equivalent CAD 101 at a four-year college. Another option being considered is for the completion of a series of certificate courses in one field, e.g., welding, to be considered the equivalent of completing an introductory course in welding at the four-year institution. A similar option might be for a completed community college certificate to be "transferred" as the equivalent of several four-year college introductory courses. In each of these scenarios, students could begin their four-year degrees at a higher course level than if they started from scratch. A good deal of exploration and discussion still needs to take place before choices are made and

further articulation agreements are established. To facilitate the process, MSU is scheduled to hire an Articulation Facilitator in the fall of 2014.

An issue noted by one of the consortium colleges regarding course equivalencies is that the college may have little control over some curricula. RRCC, for instance, is going to be using the 5-Axis course that CCD is developing for one portion of their credentialing process. All consortium schools using courses developed by other colleges will be reliant on the other school's ability to create a transferable course.

THE NAVIGATOR

In addition to the above goals, CHAMP established the Navigator position to assist program participants successfully complete their academic programs, prepare for the workforce, and find employment. The navigator position is similar to the career coach position under TAACCT Rounds 1 and 2, but the focus here is much more on helping students "navigate" through their selected CHAMP program, including career and academic planning, identification of college and community resources, identification of credit for prior learning options, exploring transfer and stackable credentials, and career pathways.

CHAMP requires that each school have a navigator. By the summer of 2014, all the schools with the exception of EGTC had hired a navigator. EGTC's staff feel that the school's advisors, counselors, instructors, and student services staff already carry out navigator duties. They therefore do not plan to hire a navigator under CHAMP. Since EGTC is a technical college, their student enrollment process is different from that of the other consortium colleges; students must pass certain entrance requirements to enroll. Students are enrolled with a career trajectory in place, and instructors serve as navigators helping students stay on track.

In three cases, RRCC, FRCC, and LCC, the college transferred the Round 1 TAACCT-funded Colorado Online Energy Training Consortium (COETC) career coaches into the new CHAMP navigator position. These navigators bring to their new role an array of experiences as well as established contacts within the colleges and wider communities. All three colleges have noted the difference between TAA Rounds 1 and 3 relative to the career coach/navigator position. LCC's project lead summed it up by saying, "The main difference is more of an emphasis on connecting with industry partners and potential careers … looking for partners to come in and hire our kids, students." In TAA Round 1, coaches were not necessarily expected to forge industry relationships to the degree that navigators are in Round 1. All three navigators have addressed this difference by focusing on the development of industry relationships that will best serve the programs and students.

RRCC has not only retained its career coach from the COETC project for the full-time navigator position, but they are also hiring a second navigator specifically to market the program and build employer relationships. The second navigator will work part-time, while the full-time navigator will focus on soft skills training, such as "Bring Your 'A' Game to Work," a soft-skills training that the RRCC coach developed during the first round. The training is being redesigned into a one-credit course for students in both the COETC Water Quality Management program and the CHAMP Precision Machining program.

Navigator Duties

While the CHAMP proposal identified raison d'être for the navigator—helping students to succeed in their CHAMP programs—the specifics of their tasks and activities were not spelled out. Navigators are therefore engaged in a range of activities, defined by the needs of the CHAMP program at their respective institutions, the needs of students, and the existence of other student support services. Navigator activities have been defined as including registration assistance, financial aid applications, interview techniques and career planning, and helping students develop personal finance skills. In addition, navigators are expected to engage in outreach and recruitment activities, foster relationships with industry employers, and participate in the development of internships. Further, as progress is made, navigators may also be involved with credit for prior learning, transfer and articulation into four-year institutions, and the CAEL Interactive Career Map. CCCS, along with CAEL, plans to offer professional training to navigators, especially on CPLs and the career maps, but senior CCCS staff are also soliciting requests for training, workshops, or webinars on other areas.

Project leads see the navigator as a key position for the success of students and the CHAMP programs. However, the "what" of the actual navigator role has been interpreted differently by the project leads. This has resulted their participation in navigators participating in a wide range of activities at their colleges.

CCD and PCC's project leads see the navigator primarily as an advising resource for students— monitoring students' progress and helping them stay on track. The lead at LCC, in contrast, thinks that the navigator should be actively working with the regional workforce centers and building the Employability MOOC. LCC's navigator spends time in the college's Career Center and holds office hours once a week at the local workforce center. Similarly, PPCC's project lead wants to shift the school's navigator toward building industry relationships and recruiting through workforce centers. At MSU, the project lead believes that the navigator's top focus should be on marketing the CHAMP program to students and connecting students with industry. The navigator at Aims is split 50/50 on building business relationships and mentoring students.

At PPCC, the navigator divides her time among counseling, recruiting, creating internship opportunities, and assisting with financial aid and credit for prior learning. She defines her role as giving students "one place to go" for advising, career assessments, help with résumé writing, and help building interview skills. She does most of the student enrollment for CHAMP programs at the college, so she feels that her role is to help them all the way through their educational career: "[I] shake hands, hold hands, and then hug them at the end." The PCC project lead added to this that the navigator's job is also to "kick them in the butt if necessary."

CCD sees the ultimate role for its navigator as "to help a student to find a career path that [he or she] can get excited about and be successful in."

At FRCC, the counseling function has been assigned to the navigator, and the college has hired an Employer Outreach Coordinator to focus on building relationships with business, developing internships, and helping match students with employers. The navigator's office is located in the same building as the machining classes and student shop, so she has "captive students," which "makes it very easy for those students to seek her out and ask questions and get their answers right away." She has become "the interface for those students" and often literally walks students to wherever they need to go to get help, such as to the financial aid department. FRCC sees its navigator as "a really great bridge for those students [to get] back into the rest of the college network."

The CHAMP Statement of Work specified that navigators would develop and teach student success courses. These courses focus on study skills, time management, and general life success skills. Each navigator will make decisions regarding how these courses will be used and integrated at the college. Because of this, variance in the rollout and use of the courses is expected.

CHAMP programs are scheduled to begin in the spring of 2015, so the work of the navigators to date has focused on recruiting and advising prospective students, as discussed below. As part of their recruitment efforts, some navigators have developed presentations for potential students, employers, and workforce center staff, e.g., PCC. PPCC's navigator has also been assembling resource binders for students. Many navigators are also reaching out to their campus' student services to establish relationships that will facilitate bi-directional referrals once their programs are up and running.

CAEL INTERACTIVE MAP

As part of the CHAMP grant, the Council for Adult and Experiential Learning (CAEL) was tasked with building an Interactive Career Map. This tool will be an online resource to assist

prospective and enrolled students to learn about manufacturing career options. In one of its marketing resources, CAEL describes the need for this tool:

> When you reveal career paths, current and potential employees gain an awareness of how to successfully enter or progress within an industry or company. When the path is clear, they are more likely to get there. Solid career maps support workforce development, economic development and workforce readiness. They result in more effective use of tuition dollars, augment recruiting strategies and make for a more informed and engaged work culture.

To build this resource, CAEL collected information about industries and current trends, including industry job types, hiring policies, company size, and anticipated employment needs. CAEL is also developing materials about the career paths that are most in demand and available certificate and degree programs within the CHAMP consortium. On their dedicated CHAMP website, CAEL plans to create a public job board on which local, regional, and statewide hiring needs will be posted. By the end of August, CAEL had its site frame built and was beginning to load the content.

The CAEL career map is scheduled to be launched in October 2014. Once it is activated, an interested party can log in to learn how his or her skill-set matches up with expanding career opportunities in manufacturing. As reflected in the above marketing statement, it is hoped that the new career map resource can be used to interest students in careers in advanced manufacturing and stimulate their enrollment in one or more CHAMP programs.

STUDENT RECRUITMENT AND ENROLLMENT

CHAMP courses are not scheduled to fully begin until the spring of 2015; however, consortium schools have been active in marketing their respective program offerings and recruiting students.

Several consortium colleges have marketed their programs to prospective students through job fairs or other similar events. PPCC recently had a "student involvement fair" during which CHAMP project members marketed their programs to students. The team focused on undecided students, military veterans, and active-duty military personnel who are transitioning into the workforce. The fair identified approximately 25 potential students for with whom the team will follow up.

PPCC also participated in Manufacturing Week in Colorado Springs, which culminated on Manufacturing Day. The college prepared two sessions with a panel of speakers, including instructors, to showcase and market the programs to prospective students. They showcased

high-tech videos with program technology such as robotics, machining, electronics, etc. Later this fall, PPCC will also participate in a second expo, the Southern Colorado Manufacturing Group expo, to provide program information and recruit students.

Similarly, LCC has started sponsoring a Career Expo in which it showcases its welding facility and programs. The star of the expo is their welding simulator:

> It's like a video game. So we set that up at the career fair, and there's just a continual line at that simulator at the career expo. And I think that's actually attracted a lot of students. It's a teaching and learning tool, but to them it's like a novelty.

MSU is similarly engaged in outreach activities, providing speakers and giving presentations about its CHAMP programs.

FRCC's navigator and outreach coordinator have partnered in student outreach and marketing activities. Together, they have developed what they refer to as a "best practice" in student outreach: the two of them go to various companies and provide program information directly at the site. Incumbent workers have been receptive, and companies are supporting the practice. FRCC staff find that people that have been out of school for a long time are intimidated by the thought of coming to campus. Having staff members go to them alleviates the associated anxiety. The project lead also noted that having an established connection with the navigator and outreach coordinator helps students feel more comfortable when they do come to campus.

CCD plans to work with Goodwill Industries, the Colorado Office of Economic Development and International Trade (OEDIT), and the Colorado Advanced Manufacturing Association (CAMA), as well as local chambers of commerce, to recruit potential students. RRCC is collaborating with industry partners to encourage incumbent workers to enroll and pursue credit for prior learning for their current skills. AIMS and PPCC both have long-established relationships with their regional workforce centers and have decided to rely on their respective workforce centers to identify and enroll TAA-eligible students.

While most of the consortium colleges are having some level of success in partnering with their local workforce centers, building relationships with them can be challenging. One CHAMP consortium member finds working with the local center frustrating, partly because "it's a little difficult to get them to respond in a timely manner" and partly because the center does not see how the enhanced program will benefit clients. The hope is that this will change once workforce staff begin to observe how training clients with the CHAMP program gets them not only jobs but also well-paying jobs:

> I think it will change when they get invited to the grand opening and they see the equipment and they see the curriculum and they see the starting salaries for people who graduate from our programs...

FRCC's staff shared the above college's frustration, stating,

> [They] are challenging relationships to build … each workforce center has different rules and regulations and guidelines, different levels of desire to be involved.

LCC, now in their third round of TAACCT grants, has historically had trouble building a strong relationship with its local workforce center. For CHAMP, it is trying a different tactic: its navigator is setting up a desk in the workforce center one day a week. The workforce center is positive about this idea. The navigator is hoping that being more visible to the workforce staff and to clients will help her in recruiting efforts. Being present will also help her to build relationships with workforce staff, facilitating their fuller understanding of LCC's programs and how they may benefit workforce clients.

MSU has established a relationship with its Office of Economic Development and International Trade (OEDIT), which is another type of workforce connection. MSU and OEDIT have jointly visited industry sites and developed plans for sharing resources and industry connections.

The majority of consortium schools reported that they are on track to meet their target enrollments. FRCC, for example, was happy with the student response to the program and indicated that its first enrollment process went very well: "We're always hoping for more, but … for our first run-through … it's very respectable enrollment." LCC actually reported that student enrollment is one of their biggest CHAMP achievements to date. Not only is this great for the program and the college but it is also a boon for students and the community "because there's good potential for employment there in an area that's just largely impoverished. And it's a much needed thing to give these students hope and a future."

The most significant exception is EGTC, which has reported difficulties in generating student interest in its program. The college's marketing department is currently "trying to figure out" why it has been so difficult to get students interested and how best to shift recruiting strategies to meet enrollment targets. Especially because EGTC plans to have the program completed and ready for student enrollment in October 2014, the lack of interested students is a major concern to the college.

One CHAMP consortium member stated that student recruitment challenges are not unique to CHAMP or any other grant; they are systemic challenges that often plague community colleges:

Certainly student recruitment will always be a challenge [and] something to be … an area to be innovative. Student recruitment … is always a challenge, whether it's for the grant or it's for the college. At the community college level, it's tied to the economy … strongly to the economy, and those ups and down have the same impact … on enrollment as it does on your pocketbook, so recruitment's always a challenge.

Veteran Enrollment

Colorado's governor has a special interest in responding to the employment needs of veterans, as does the CHAMP project. Outreach to veterans is therefore a special focus of the colleges. CCD, PPCC, MSU, and RRCC each have a veteran's service office on campus, and they are working collaboratively to promote CHAMP. CCD has identified over 500 veterans who are currently enrolled at CCD and plans to contact these students to share information about CHAMP. In addition, CCD will reach out to its student veterans association as well as the campus-linked Army ROTC Buffalo Battalion. CCD's project lead also has a military background and is very focused on strengthening the college's involvement with veterans.

AIMS and FRCC have veteran representatives who attend advisory meetings and help to guide the development of their respective CHAMP programs. This facilitates outreach to the veteran population and understanding some of their special needs. PCC does not have a campus veteran office but is working to identify some strategies and best practices to reach out to the veteran community in its service area.

YEAR TWO: NEXT STEPS

In July 2014, each of the project leads was asked about his or her plans for the second year of the grant. Six of the project leads (at AIMS, FRCC, LCC, EGTC, PCC, and RRCC) indicated the completion of the course design process as a priority. AIMS, EGTC, and CCD stated their intention to expand industry engagement and support. CCD also noted plans to develop more internship opportunities. The schools involved in remodeling facilities and/or the purchasing of new equipment (e.g., FRCC, RRCC, LCC, CCD, and PPCC) indicated that their focus was to finish before the March 2015 deadline for renovation. The EGTC, CCD, and PPCC project leads all discussed plans for expanding recruitment activities.

CHAMP program courses will officially begin in January 2015. In February 2015, the three MOOCs will be launched online. Subsequently, work will be completed on credit for prior learning competencies and assessment. These will be followed by the establishment of articulation policies and agreements.

Beginning with the spring 2015 semester, the navigators' duties will shift somewhat to student advising as well as the establishment of internship opportunities. Internships are expected to be ready for second-year students in the fall and spring of 2016.

In year two, project leads will begin to shift from coordinating the building of CHAMP programs to their management. They will monitor progress, identify challenges, and work to ensure that the programs are meeting project goals and grant targets. They will also work with the third-party evaluator to identify program achievements, track progress, and address emerging challenges.

FUTURE REPORTS

This is the inaugural year report for CHAMP. Future reports will discuss achievements, emerging best practices, student experiences, and challenges and how they are being addressed. As courses are launched and students enroll, the evaluation reports will report on retention and completion as well as employment and wages. For these metrics, a quasi-experimental design will be used comparing CHAMP participants with a comparison cohort.

Moving forward, the Rutgers EERC team will work with CCCS to clarify the need for timely and accurate data and with project teams around their specific data collection challenges. Further, when it is possible and relevant to changing needs and interests, supplemental reports will be completed. The foci of these reports may include credit for prior learning, the use of MOOCs, industry–college partnerships, the role of women in manufacturing, and work with veterans.