

## **Sustainability: The Colorado Helps Advanced Manufacturing Program in Context**

In the final year of the CHAMP grant, the focus at most schools shifted from implementation to sustainability in respect to four inter-related areas: program and curriculum design/redesign; staff roles; the maintenance and upkeep of equipment purchased during the grant period; and on-going partnerships with industry. In the following pages, we highlight some of the colleges' decisions and plans in respect to these key areas. Most colleges' sustainability actions fell within the following four categories: suspension, modification, continuation, and continuation with expansion.

### **Sustainability of CHAMP Programs**

Across the consortium in interviews with ERRC, college staff stated that they planned to continue most certificate and degree programs developed or redesigned under CHAMP. A number of colleges, however, indicated program changes. For example, during the grant, PCC launched a fast-track program in welding and one in machining. Feedback from fast-track welding students and faculty has been very positive. Nevertheless, an in-depth examination of the program's continuation is now planned by the Dean's office. Issues of concern include the higher cost of consumables for fast-track students versus traditional welding program students; limited classroom space; and the potential saturation of entry-level welders in the region.

In contrast to welding, students and faculty involved in PCC's 16 week machining program reported that it was - "too much too fast." In response, machining faculty developed a 20-week program. But this program also turned out to have too much content to be covered in too short a period of time. As of EERC' fall 2016 visit, PCC was considering a longer introductory-level machining certificate to replace the fast track program.

In addition to program development, a focus of CHAMP was the transformation of courses into hybrid—a combination of online and hands-on learning--formats. Some hybrid courses were found to be successful by the colleges, e.g., LCC. But over time, other colleges were less enthusiastic about the online portions of courses. PCC's faculty reported that its hybrid CHAMP courses were not working well for either students or for faculty. In place of these courses, PCC's faculty created "web enhanced" teaching - a combination of traditional classroom lectures linked to online videos and teaching tools students could access on their own time. These courses were reported to be far more successful.

At FRCC, one of the primary accomplishments of the final grant year was the college's alignment of machining courses with the National Institute for Metalworking Skills (NIMS) certifications. This has created a great opportunity for hands-on-learning in the program as well as the opportunity for students to earn industry recognized certifications. NIMS certification benefit both entry-level and incumbent workers. In addition to NIMS certification, FRCC is exploring other strategies to expand its offerings in advanced manufacturing.

Some CHAMP colleges are currently considering the development of non-credit and competency-based course options in addition to credit-based courses, e.g., Aims and LCC. These new options are hoped to address changing industry needs as well as to provide opportunities for incumbent workers to enhance current skills and/or retool.

In addition to the above efforts and activities, the digital badging initiative begun under CHAMP is being continued. CCCS has secured funding for the Credly badging platform through September 2019 and recently established a new position, Director of Workforce Development. The new Director may hire an instructional designer. Working together they

will assist colleges in the development of new badges as well as the refinements of existent ones. Currently, both CHAMP and Colorado's non-CHAMP colleges are exploring new badges in professionalism (FRCC); gunsmithing, drone analytics/GIS and agribusiness (Trinidad State Junior College); and heavy equipment and civil engineering (Colorado Northwest Community College). Colleges are also working with their industry partners to identify which badges would be most helpful to them as they assess future hires.

At LCC much of the focus of the final grant year has been on its extremely successful welding program, a series of stacked certificates progressing into an associate degree program. The reputation of LCC's welding program has grown over the course of CHAMP. As a result, classes have been over-enrolled, and there is a waiting list. LCC is exploring strategies to sustain and expand the program without sacrificing quality. Plans include employing additional instructors and building a larger facility to house welding and other CTE programs. In addition, LCC is exploring the development of some non-credit certificates to better align with the training needs of local and regional industries. Further, the college is considering launching "turn-key" training opportunities wherein employers send an employee to be trained at LCC, and then returns to the company to train his/her colleagues.

### **Sustainability of Staffing**

Sustaining staff is generally more challenging than sustaining programming. Across the CHAMP continuum, colleges report that many grant-funded positions such as lab techs, shop techs, navigators and even some instructor positions will not be maintained. In some cases, functions have been or will be absorbed by other staff. However, given the already stretched faculty and staff at most colleges, there is real concern that it will be difficult to maintain some critical functions that have been shown to make a difference. These areas include 1) the navigator position and 2) coordinator for employer/industry relations. Sustainability of the navigator is discussed here;<sup>1</sup> staffing in respect to industry relations is discussed below.<sup>2</sup>

LCC is the only college that has decided to retain the navigator position--building her into the school's budget and expanding her role to Career and Technical Education (CTE) students. At FRCC, the grant-funded Employer Outreach position has been combined in part with the navigator position in a new Advanced Manufacturing Program Coordinator (AMPC) position. However, while the AMPC will continue to advise FRCC's non-credit manufacturing students, credit students will be served by faculty advisors as well as by the college's general advising staff.

Over the course of the grant, EERC found navigator-served students had higher rates of retention and stacked more certificates than those who were not served by a navigator. Both these outcomes affect program enrollments. As such, for some colleges the absence of a navigator may impact the size of some their programs as well as their long-term sustainability.

### **Sustainability of Equipment<sup>3,4</sup>**

One of the major challenges facing the consortium schools is the ongoing maintenance of the equipment purchased under CHAMP. Most equipment requires regular upkeep and maintenance. This can be costly, as can equipment-related supplies. During CHAMP, schools used grant funds to cover these costs. In the final grant year, some colleges developed solid plans to pay for on-going maintenance and supplies. For example, FRCC now has college-supported vendor contracts to maintain its equipment. However, as of spring, 2017, most colleges were still exploring how to fund their maintenance costs.

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<sup>1</sup> See EERC's brief on the Navigator

<sup>2</sup> See EERC's brief, Employer-College Relationships

<sup>3</sup> See EERC's brief on Employer-College Relations

<sup>4</sup> See EERC's brief on Hands-on Learning as well as its brief on Hands-on Learning

Colleges report that lab fees are not sufficient to cover the supplies and maintenance. So some plan to use general college funds, e.g., RRCC. Colleges have also begun to seek external resources. Both FRCC and RRCC are working with their industry partners to provide some funds and/or in kind donations. Other colleges plan to apply for county, state and/or federal funds to maintain their equipment.

Colleges also plan to utilize faculty, many who work in the field, to perform maintenance tasks on equipment. As a staff member from FRCC observed,

*one of the benefits to creating a manufacturer technician kind of program is that we can 'grow our own' to take care of the things that we implement, so take care of the machines, be able to diagnose issues and things like that as they come in.*

Given changes in technology, the currency of equipment is also an issue of sustainability. To keep abreast of changes in the industry, colleges need to purchase new kinds of equipment, often high-dollar equipment. Post-CHAMP colleges are concerned if they will find the funds to make these purchases. As noted by one staff member, equipment—with proper maintenance—will “last 20 years” but staying current with industry technology means adding equipment in the future.

Another challenge closely associated with equipment was space allocation. At least two of the consortium schools, PPCC and FRCC, were discussing space expansion as part of their sustainability planning. At PPCC, limited lab and classroom space was causing classes to be capped below demand, affecting recruitment and enrollment. At FRCC students and equipment were fast outgrowing the school's shop facilities. To remedy the situation, FRCC staff hopes that the CHAMP programs will become part of the college's proposed “Center for Integrated Manufacturing” to be housed in a newly built center or a suitable space in the community.

### **Sustainability of Industry Partnerships**

Over the course of CHAMP, colleges have increasingly recognized the importance of building and actively sustaining partnerships with regional businesses. Colleges found that 1) maintaining an engaged advisory board and 2) being involved in sector partnerships and regional manufacturing groups were critical to their ability to refine and build their CHAMP programs. These partnerships have also served the college as a “pipeline” for students. These partnerships provided industry, a “pipeline” for employees. Most colleges report that the strong industry relationships that have developed will continue post-CHAMP. Nevertheless, across the continuum, there is real concern about losing dedicated staff to sustain advisory boards and engage in employer outreach.

### **CLOSING OBSERVATIONS**

For the colleges in the consortium, CHAMP provided a major stimulus plus the resources to innovate, enhance and solidify their advanced manufacturing programs. The funding enabled them to do more employer outreach and to establish new or strengthen old relationships with industry partners. Many new certificate opportunities have been developed, and program curriculum has been enriched and redesigned to better serve industry needs. These achievements were made possible through active employer input as well as faculty release time, the availability of instructional designers, and new equipment--all paid out of grant funds.

Over the past four years, the colleges in the CHAMP consortium have created different programs to meet different regional needs, institutional cultures and resources. As the colleges move beyond CHAMP, many programs will continue, but changes will also be made. These changes will come from technological and industry shifts, but also because of reduced funding. The colleges' approaches to sustainability will continue be different. But in the end, it is clear across the consortium that, CHAMP, as one project lead said, “has been a game changer for our programs and the college.” And this legacy – and the stimulus it provided, will continue to be carried on after CHAMP sunsets, September 30, 2017.