Community Colleges Creating Economic Mobility

Case Studies of Manufacturing Certificate Programs in California and Connecticut

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This brief is a case study of successful efforts by manufacturing certificate programs at two community colleges that have resulted in economic mobility for graduates, especially for people of color. The programs included in this case study had racially diverse student enrollment, high rates of program completion, and positive labor market outcomes. The findings of this study are based on in-depth interviews with program alumni. We also spoke with a handful of employers and college personnel to better understand the programs. The goal of this brief is to inform program design and delivery across community colleges nationally with the goal of creating equitable economic mobility.

Programs Selected & Program Graduates Interviewed

The programs we highlight in this brief are California's Fresno City College's Maintenance Mechanic Program (MMP) and Connecticut State Community College's (CT State) programs in Advanced Manufacturing Machine Technology (AMMT) and CNC Precision Machining offered at the Asnuntuck and Housatonic campuses respectively.

Fresno City College's MMP is a nine-month long, non-credit certificate program that prepares students for a career in industrial machine and equipment maintenance. Over the years, the program has evolved to respond to changes in occupational competencies, and it has grown in size in response to student demand. The AMMT program at the Asnuntuck campus of CT State is a year-long credit-bearing certificate program. It includes an internship option that is available to students with satisfactory academic performance. In addition to the internship, a unique aspect of the AMMT program is the career awareness class on job search, resume writing, interview skills and salary negotiation, taught by the AMMT Program Coordinator. The CNC Precision Machining program at the Housatonic campus of CT State has three levels. Each level requires three months to complete. Students may take one or more levels. Each student's skills are assessed, and students may begin at any level given their prior knowledge and matching skills. One unique aspect of the program is being highly tailored to student skills and employer needs.

Table 1: Programs Included in the Study

	Fresno City College	**Asnuntuck (CT State)**	**Housatonic (CT State)**
Program	Maintenance Mechanic Program	Advanced Manufacturing Machine Technology	CNC Precision Machining Level 1 CNC Precision Machining Levels 2 & 3
Credit/Non-Credit	non-credit	credit	non-credit
Length	30 weeks	1 year (2 semesters)	Each level is 3 months long

Overall, 64 program graduates were interviewed. As mentioned above, one criterion for selecting colleges was success in recruiting students of color and supporting their completion. During the interviewees, we prioritized recruiting non-white program alumni, resulting in a racially diverse pool of interviewees. Across the three programs, 96% of the program alumni interviewed were non-white. The gender composition of our interviewees was predominantly male, which mirrors the gender diversity of the manufacturing program graduates, where women are significantly underrepresented.

Table 2: Interviewee Race/Ethnicity Across Colleges

Interview Race/Ethnicity	
Asian	11
Black/African-American	13
Latino	32
Multiple Races	4
Other/Unknown	2
White	2
Total	64

Learnings Across Programs

Learning #1. The key to manufacturing programs' success was targeting occupations that were above entry-level, and offering relevant competencies with in-depth, hands-on learning.

Across all participating colleges and site campuses included in this national study, program success was directly tied to aligning the skills and experience gained in the program with "high-quality" jobs. Alumni across programs defined high-quality jobs as those that pay a living wage, offer good working conditions, and provide opportunities for advancement. College personnel shared that targeting high-quality jobs required carefully considering program length to ensure that the curriculum covered necessary competencies for high-quality jobs and the program offered participants adequate time for hands-on learning.

Our interviews with alumni revealed that the program created access to manufacturing jobs, and for the vast majority, it led to ongoing advancement opportunities. Alumni identified the in-depth, hands-on experience and the competencies they gained through the program as key factors that led to employment in high-quality jobs. Employers we interviewed echoed program graduates' perspectives that the competencies learned in the program aligned with employer needs. Additionally, employers attributed program graduate's experience with machinery, gained while attending the program, as helping them qualify for above entry-level positions, and noted the program provided alumni with the skills to be successful in those positions.

"When I had the interview, I felt like I had the interview of a lifetime. There was nothing I could say wrong because of what they taught us."- Alumni, Fresno's City College's MMP program

"Personally, for me, I would say it's probably one of the best investments I've ever made because it gave me an opportunity to grow in my career."- Alumni, Housatonic's CNC Precision Machining Program

"It does take a lot of time and patience to understand the concepts, whether it be electrical, welding, hydraulic, pneumatics. So, I think having those certificates definitely gives you an advantage when applying to your first maintenance mechanic job."- Employer, regarding graduates of Fresno City Colleges' MMP program

Learning #2. Having mentors with industry knowledge and connections was key to graduates' labor market success.

Program alumni shared the importance of high-quality mentorship in identifying the right job and succeeding in the selection process. Program faculty or staff who had deep industry connections played a key role in connecting students to employers. This mentorship is especially important for the success of students of color and low-income students who are less likely to have access to outside mentorship opportunities.

"I mean, if you wanted, if you showed that you were willing to put the work in and you were dedicated to it, you could go to those instructors and say, 'Hey, I want to find some work in this industry' – such a fantastic program."- Alumni, Housatonic's CNC Precision Machining Program

"The instructors literally walked you through and made sure you were successful."- Alumni, Fresno's City College's MMP program

Learning #3: Internship opportunities and job search support made a big difference in connecting program graduates to "high-quality" jobs.

The Asnuntuck's AMMT program includes an internship opportunity that alumni found especially helpful. One important benefit of the internship program was that it seemed to count as relevant work experience in the eyes of employers, and for many, it led to a full-time position. This was particularly helpful for students who did not have industry-relevant experience prior to enrolling in the program. Other benefits of the internship program were that it allowed students to "test out" a specific work environment, and working with real machinery gave students confidence that they could, in fact, succeed in the work environment.

While many college career centers offer job search support such as resume workshops, students found theses services particularly helpful (and were more likely to take advantage of them) when they were integrated as part of the coursework and tailored to the manufacturing sector. At CT State's Asnuntuck Campus resume writing and interview workshops were a required class and highly tailored to AMMT students. AMMT graduates found these tailored classes to be valuable, noting the support with salary negotiation for the specific roles they were applying to as especially helpful.

"The program did really good in that regard because we had access to help get any resumes done, and getting all that stuff put together by the current advisor. Whenever I was looking for a job... I could reach out to her and ask questions and she would give me a rundown of what to look for, and ideas of what to accept and what not to accept."- Alumni, Asnuntuck's AMMT program

Conclusion

Our in-depth study of three manufacturing programs allows us to glean essential features of successful non-degree programs that create economic mobility. It is essential that the program targets above entry-level occupations that have the potential for career advancement. This can be challenging to determine without an in-depth understanding of the regional labor market and the structure of pathways to advancement within the targeted industry. Secondly, successful program design requires developing relevant competencies and ensuring students can dedicate adequate time for in-depth, hands-on training. In terms of program delivery, having faculty and staff with industry experience and connections who are willing to mentor students is of foremost importance. While these program elements can increase program cost, our study shows that these investments are likely to pay off in terms of student outcomes and economic mobility.

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