Evaluation of the Michigan Coalition for Advanced Manufacturing (M-CAM)

Executive Summary of the Mid-Project Implementation Report

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Cover Photo: Brittany Schroeder, a CNC machining student at Lake Michigan, is using the lathe to face a piece of stock to length

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Executive Summary

Background

The Michigan Coalition for Advanced Manufacturing (M-CAM) initiative was designed to help unemployed adults (including TAA-certified workers and veterans) gain the skills required to fill available jobs in Michigan's advanced manufacturing sector. The M-CAM initiative was developed by a consortium of eight community colleges in Michigan and funded by the U.S. Department of Labor's (DOL) Employment and Training Administration (ETA) under Round 3 of the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant program.

The M-CAM leadership team selected Social Policy Research Associates (SPR) as the initiative's third-party evaluator in March 2014. This mid-project report highlights implementation of the M-CAM TAACCCT grant as of summer 2016, with a focus on describing key features of the initiative, factors influencing implementation, and preliminary outcomes. The report draws on three rounds of site visits to each college, case study interviews with students, a student survey, Efforts To Outcomes (ETO) data on student participation, and wage data from the state of Michigan.

Structure and Management of Grant

The key entities in the M-CAM initiative include the Board of Advisors, made up of Presidents of each college, Macomb as the lead college for the consortium, and the M-CAM operational staff within the industrial trade and workforce divisions at each of the eight colleges.

As the lead college, Macomb oversees work plan implementation, convenes meetings of colleges and key partners, reports on outcomes to DOL, and coordinates with contractors (including the third-party evaluator, technical assistance provider, and communications firm).

Each college in the consortium, with the exception of Bay, is responsible for leading at least one M-CAM activity. As an Activity Lead, a college is responsible for (1) developing a work plan for task execution, (2) convening colleges to discuss approaches related to the activity, (3) developing a common M-CAM implementation approach.

- The M-CAM Consortium includes eight Michigan Community Colleges: Bay de Noc, Grand Rapids, Kellogg, Lansing, Lake Michigan, Macomb, Mott, and Schoolcraft.
- Colleges are using the $24.9 million grant to update equipment and on-campus technology, enhance coordination and build capacity across the eight colleges, improve student access to career advising, and engage employers to better align training to meet future job needs.
- Colleges are focused on enhancing curriculum and hands-on learning opportunities with new equipment in four M-CAM pathways: Production, Welding, CNC Machining, and Multi-Skill Technician/ Mechatronics.
- A key focus of the grant has been on aligning training curricula across each of the eight colleges to industry standards and industry-recognized credentials.
- In order to develop a comprehensive career pathways system, colleges also focused on developing intensive upfront assessment and career counseling, foundational skills training, and job placement services.

Student Enrollment and Completion

At the point that this Mid-Project Report was written, M-CAM had already exceeded its TAACCCT-grant enrollment goals: the colleges had enrolled 3,042 students in M-CAM, representing 111 percent of the cumulative enrollment goal for the entire grant.

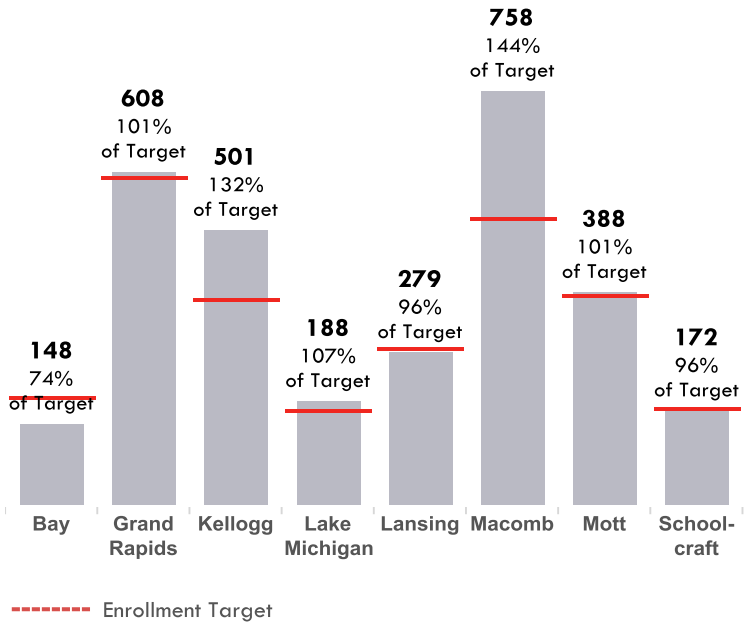
As of July 31, 2016, half of all M-CAM participants were still enrolled in M-CAM programs. Over a third (40 percent) of all participants had completed and exited, while 10 percent withdrew from M-CAM programs without completing. The student survey results show that students who withdrew did so primarily because of life conflicts, rather than because of dissatisfaction with their training.

There is broad variation in the age and life-experience "profile" of students. Six in 10 M-CAM students are either over 40 or under 25 years of age. Students in these two groups typically have very different "profiles" in terms of their work experience, understanding of manufacturing trades, and life responsibilities. Furthermore, students who faced significant life challenges, including housing instability, criminal history, and transportation challenges often viewed M-CAM as a vital "second chance."

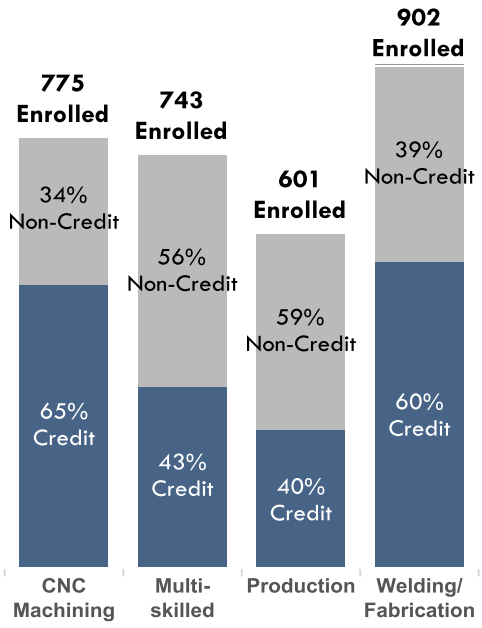
- Sixty percent of M-CAM participants are white males. One-quarter of students are African American and less than 13 percent are female.
- The 29 percent of participants who were over the age of 40 often viewed M-CAM as a chance to upgrade their manufacturing skills to improve employment prospects.
- In contrast, the 31 percent of participants under the age of 25 were often still in an exploratory mode as to their career path.
- Half (49 percent) of M-CAM participants were employed at the time of enrollment and looking to upskill so that they could move into higher paying manufacturing jobs.

Enrollment by College

Number of Participants and Percent of Enrollment Target Reached



Enrollment by Career Pathway



Recruitment Practices

The success of M-CAM colleges in surpassing their overall enrollment goals for the grant is particularly impressive when one considers the broader context for enrollment at each of the colleges. Overall, enrollments across all of the M-CAM colleges declined over the course of grant implementation, mainly because of the thriving economy and the demand for labor among local employers. M-CAM staff members, therefore, had to be particularly aggressive in their recruitment efforts to ensure that programs were full and that they were reaching their target enrollment goals.

College staff reported that the grant greatly increased the ability of colleges to market their programs and to increase awareness of manufacturing sector training and employment opportunities. A staff member at Kellogg said, "M-CAM has helped to increase marketing… in industrial trade programs and occupations. The grant has put us on the map." With the support of grant funds, colleges distributed pamphlets, conducted presentations at partner organizations, and advertised in local newspapers.

- Promising recruitment practices include: (1) presentations by employers and faculty at recruitment orientations to help prospective students understand the value and importance of training; and (2) close collaboration with key partner agencies to facilitate recruitment, particularly when it comes to recruiting vulnerable populations.
- Recruitment challenges included negative perceptions of manufacturing among students and their families, low entry-level pay in production, and limited college staff dedicated to recruitment.

Foundations for M-CAM Training

M-CAM's training programs are administered at the college level and, thus, the training curricula were developed independently at each college. Nevertheless, for the initiative to function as intended and realize its goals, the colleges in the consortium had to coordinate their work in identifying skills gaps, developing their training programs and aligning them to industry standards.

To facilitate this process, M-CAM created a workgroup for each industry pathway made up of key faculty members, instructors, and staff members. These groups worked to achieve the following: make the curricula within each pathway more employer-focused across colleges in the consortium, identify appropriate industry-credentials and enhance alignment with national industry-recognized credentials, develop technology-enabled learning strategies (e.g., hands-on learning, online coursework, online communities), and incorporate updated technology into the course content.

Furthermore, in order to revise curriculum and training programs, colleges needed to select and purchase equipment and actively engage employers to ensure that programs aligned with industry standards.

- The majority of the colleges spent between 20 and 40 percent of their grant funds on new equipment. These purchases increased the availability of hands-on, experiential learning for students on the types of equipment used by industry partners. Nearly half of the equipment purchased was used to strengthen the Multi-Skill Technician/Mechatronics pathway.
- M-CAM supported a tremendous infusion of new equipment for colleges, a number of which had limited opportunities to invest in equipment prior to the TAACCCT grant.

Employer Engagement

The colleges all had employer relationships prior to M-CAM, but the M-CAM grant required that they reconnect with their employer base and strengthen those relationships. M-CAM staff and faculty members worked with employers to inform all aspects of the implementation of the pathways model, particularly alignment of curricula with industry practices, standards, and credentials, and development of employment and work-based learning opportunities. In this process, the career coaches and job development staff members were instrumental in helping colleges reach out to employers and increase employer engagement, particularly in job placement-related activities.

Growth in employer partnerships over the life of the grant speaks to the consortium's deliberate efforts to actively engage employers in strengthening their career pathways, from the design phase through job placement. Consortium colleges engaged at least 188 new employers whom they had previously not worked with and leveraged those connections in meaningful ways. Furthermore, over 60 percent of employers supported colleges in five or more ways, reflecting a deep level of engagement.

- Across the consortium, the number of reported employer partnerships nearly doubled, from 204 in Fall 2014 to 392 in Spring 2016.
- 356 employers across the colleges (91 percent of total employer partners) assisted with job placement for students. These employers interviewed participants at the college, participated in job fairs, and actively coordinated with M-CAM staff members to hire students. Two of the most common roles were posting job listings (75 percent) and coordinating with M-CAM job developers to hire students (50 percent).

Core Training Programs

M-CAM promoted important changes and improvements in noncredit and credit programs in four advanced manufacturing pathways: welding, machining, multi-skilled technician/mechatronics, and production. As of the third site visit, colleges had made the following key shifts to training programs:

- The multi-skilled technician/mechatronics pathway experienced the most change. Nine new programs were developed, while 16 were enhanced. Programs were aligned with Siemens and PMMI industry certifications.
- In welding, the colleges developed seven new programs and enhanced 14. Key changes included the addition of robotic welders and virtual welders, as well as the opportunity for students to earn AWS certifications.
- Colleges developed three new programs in CNC machining and enhanced 13, primarily through the incorporation of new equipment and NIMS industry certifications.
- Colleges developed at least five new production programs and enhanced others with the addition of MSSC Certified Production Technician certifications.

- Ninety percent of students surveyed were satisfied or very satisfied with the training they had received.
- There were no significant differences in student satisfaction by college or by career pathway. Satisfaction ranged from 88 percent in machining to 92 percent in production.
- Students who were interviewed appreciated:
  - The high quality of instructors, who they viewed as having deep-levels of industry experience
  - Hands-on and applied approach to learning

Pathway Enhancements

M-CAM aimed to promote individuals' access to career pathways in manufacturing by strengthening students' academic and "soft" skills, allowing them to earn credit for what they already know, and providing mechanisms for them to transfer credit from one institution to another so that they can continue their training. As of the third site visit, colleges had made the following changes to enhance career pathway supports for students:

- Colleges had worked to strengthen students' foundational skills by harnessing and supplementing existing college resources, enhancing contextualized learning in core training programs, incorporating online basic skills testing and remediation, creating boot-camp style pre-enrollment cohort programs, and providing supplemental workshops.
- Colleges used technology to enhance pathways. For instance, colleges incorporated Tooling U, MSSC online courses, and AMTEC into curricula to create hybrid course options.
- Colleges were laying the ground work for students to receive credit for coursework completed at one college (or high school) when transferring to another institution or, in the case of noncredit-to-credit articulation, when transferring from one division to another in the same college.
- In developing articulation agreements, the colleges had identified industry certifications within each pathway, engaged their registrars in establishing equivalency values for each certification, and were in the process of implementing articulation agreements with other M-CAM colleges, as well as two four year colleges—Eastern Michigan University and Ferris State University.
- Although all M-CAM colleges had strategies for assessing and awarding credit for prior learning, using these assessments in the advanced manufacturing pathways had not yet been a strong focus of grant implementation.

- Employer partners strongly emphasized the need for colleges to focus on strengthening students "soft skills," such as punctuality and communication skills.
- Promising practices in promoting foundational skill development included:
  - Strengthening coordination between existing programs on campus
  - Offering more remediation in technical math
  - Having employers talk to students about the importance of "soft skills."
- Challenges to incorporating a focus on foundational skills include resistance from faculty to incorporating foundational content into manufacturing courses and low attendance at optional workshops.
- M-CAM students who were interviewed generally wanted to focus on technical training and did not feel as though they needed support for foundational skills.
- M-CAM students were also generally unaware that they could earn credit for prior learning.

Counseling and Student Support

A key goal of the M-CAM initiative was to create an intrusive case management and career coaching system through which students would receive a wide variety of counseling and support services, including academic advising, help with educational planning, career coaching, job search and job placement assistance, and referrals for supportive services. With TAACCCT grant funding the colleges hired additional staff members with a variety of titles (e.g. career coaches, success coaches, intake and enrollment staff, and job developers) to provide these services. In this report, we describe these staff as career coaches, even though their titles varied. Colleges also strengthened student supports by strengthening on- and off-campus partnerships—with college admissions, advising and job placement offices, Michigan Works!, Public Welfare Department, employer associations, and community- and faith-based organizations.

M-CAM career coaches work with credit students mainly on an as-needed basis whereas their interaction with noncredit students, though variable across the consortium colleges, usually occurs at regular intervals. The frequency of meetings with noncredit students varied from three times a week to once a month. During these meetings, career coaches provided four core types of support.

- Academic support, such as selecting a career pathway and training program, choosing courses and setting up class schedules, navigating the college enrollment process (e.g., college paperwork, assessments, financial aid), improving study skills, and accessing college tutoring services.
- Career information and counseling, such as assisting students with developing or improving their resumes and developing cover letters, by providing information on how to look for jobs and succeed in employment interviews.
- Job search and placement, such as providing job announcements, assisting with job search, coordinating hiring events like job fairs, and matching students to job or work-based learning opportunities.
- Dealing with life issues by assisting students to deal with life challenges and referring students to supportive services such as financial aid, childcare, and transportation assistance.

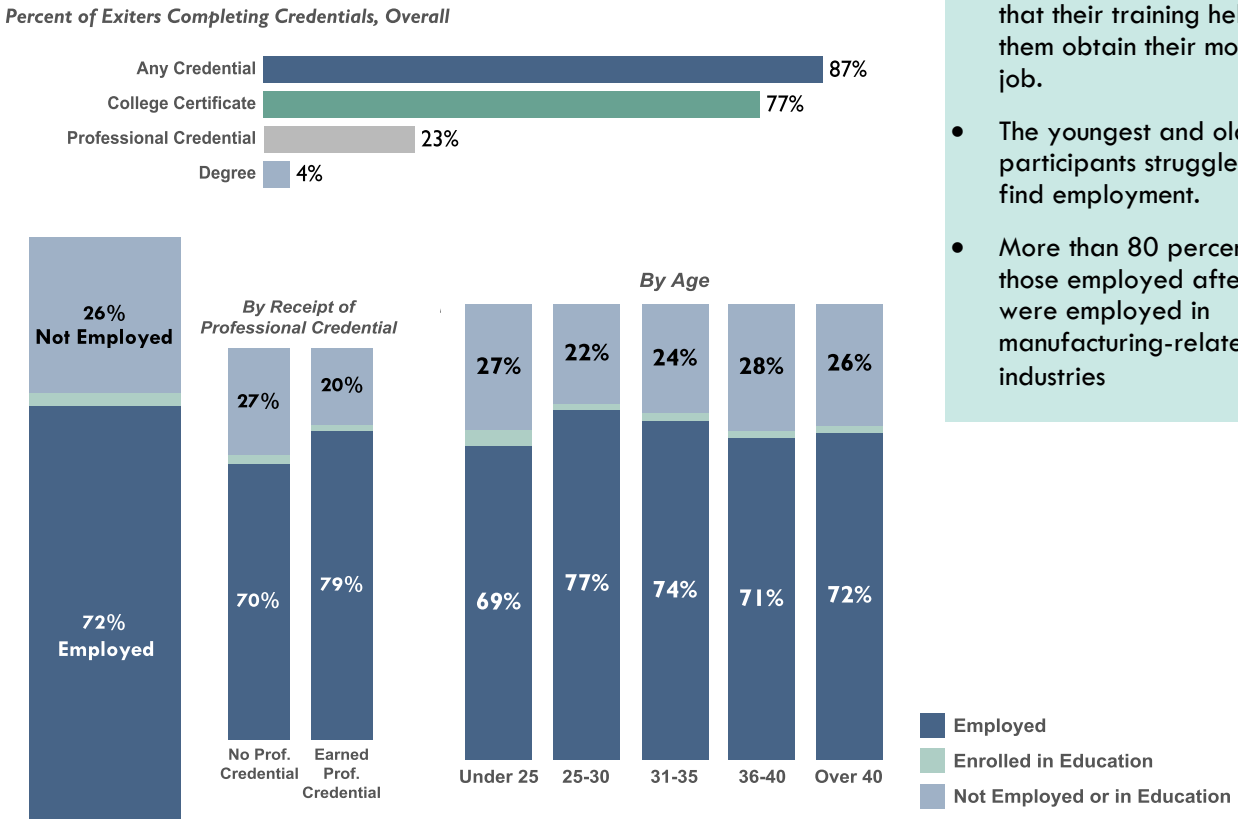
- College leads often reported that the largest "added-value" of M-CAM was the enhanced counseling and student support services.
- The amount of staff providing counseling and supportive services varied significantly by college. One college had only one part-time staff member who managed the grant and provided all supportive services. Other colleges had 4-5 staff members dedicated to providing these services.
- While M-CAM coaches are the main providers of student support, instructors at the M-CAM consortium colleges also advise students about academic planning and scheduling, provide them with instructional assistance and career advice, and, in some cases, help connect them to jobs, internships, and apprenticeships.
- Among student survey respondents:
  - 87 percent were satisfied with the academic support services.
  - 84 percent were satisfied with career information and counseling
  - 82 percent were satisfied with job search and job placement
  - 89 percent were satisfied with help they received with life issues

Participant Outcomes to Date

The M-CAM consortium strives to promote clear career pathways to well-paying advanced manufacturing jobs for participants. Key participant outcomes of interest include certifications and employment outcomes, such as employment placement, retention, and wages. Outcomes within this section are for the 40 percent of M-CAM students that have completed their studies and been exited from M-CAM services.

M-CAM participants across the eight colleges have earned 1,727 college certificates, 1,482 professional credentials, and 83 degrees. By the time they exited TAACCCT services, the majority of participants (87 percent) left their college with at least one of these certifications.

Close to three-quarters of participants who successfully completed their programs were employed by the end of the first quarter after exit. Two percent of participants were enrolled in further education and not employed, and about one-fourth were neither employed nor enrolled in further education.



- Older participants and African American participants were less likely than others to receive a college degree, regardless of their career pathway.
- Colleges awarded the following professional certifications: 671 AWS, 289 NIMS, 175 MSSC, 44 PMMI and 20 Siemens
- The percent of students completing any credential varied significantly by college.
- Earning a professional credential seemed to improve participants' employment prospects more than earning a college certificate alone.
- About three out of four exited participants who completed our survey felt that their training helped them obtain their most recent job.
- The youngest and oldest participants struggled most to find employment.
- More than 80 percent of those employed after exit were employed in manufacturing-related industries

To assess employment retention, we calculated the percentage of those employed during the first quarter after exit who were still employed during the second and third quarters after exit using employment placement data in ETO and wage records from the Workforce Development Agency. We found that employment retention averaged about 75 percent with some variation across colleges. In keeping with their lower overall rates of employment, participants under 25 years of age had the lowest rates of retention.

Wages for job placements were generally well above the minimum wage. The average wage participants received for new positions was $13.30, while the minimum wage in Michigan is $8.15. The average wages for M-CAM completers exceeds the living wage estimate of $10.10, which is the estimated hourly wage that an individual must earn to support themselves in Michigan.

About three-quarters (74%) of incumbent worker participants who successfully completed their programs earned a wage increase after enrollment. On average, incumbent workers received a 10 percent wage increase as a result of M-CAM training.

- Participants over 40 years of age made an average of $14.42 per hour, compared to $12.66 among other participants. The youngest participants, those under 25 years of age, earned an average of $9.33 per hour.
- Among incumbent workers, the value of participating in M-CAM programs seemed to be highest for workers between the ages of 25 and 40.
- African American participants earned lower wages on average than their white counterparts and were less likely to receive a wage increase if they were employed at enrollment.

Conclusion

In conclusion, it is important to emphasize the role the M-CAM grant has had in strengthening the "collaborative capacity" of the colleges, which is "the ability of organizations to enter into, develop, and sustain inter-organizational systems in pursuit of collective outcomes."[1] Key collaborative outcomes include:

- Stronger partnerships between the eight consortium colleges as well as between the colleges and key partners, such as employers and Michigan Works!
- Alignment of programs to industry-recognized standards
- Improved coordination among faculty, advising staff, and college career staff
- Development of a real-time, web-based database to track student characteristics and outcomes for both noncredit and credit students
- Progress on accessing wage data to track employment and wage outcomes for students

- M-CAM has increased coordination between colleges in Michigan, which is notable given that it is a "non-system" state.
- The colleges also used the grant as an opportunity to "move the needle" on data access and availability. Several college presidents met with the Director of Michigan's Talent Investment Agency (TIA) to discuss the importance of data sharing and data access. They also prepared a letter to TIA arguing for greater data access that was signed by all college presidents.

[1]Hocevar, Susan Page, Erik Jansen, and Gail Fann Thomas (2011). "Inter-Organizational Collaboration: Addressing the Challenge." https://www.hsaj.org/articles/64