Introduction to TechHire	Introduction to Grantees	TechHire by the Numbers	Coaching and Intensive Service Models	Short-Term and Accelerated Training	Intensive Career Pathway Training	COVID-19 Implications	Conclusion

Brief: TechHire Intensive Career Pathway Training

Introduction

Many H-1B TechHire grantees have implemented intensive career pathway training models aimed at preparing participants for middle- and high-skill jobs with strong potential in H-1B occupations and industries. The TechHire Funding Opportunity Announcement defines a career pathway as a combination of rigorous and high-quality education, training, and other services that provide participants with a sequence of education and training courses or career options, which allows opportunities for professional growth and upward mobility. Generally, this model is intended to serve individuals who need more intensive training that results in a degree or credential to gain new skills and competencies, as well as other participant and job-placement services to support their progression along a career pathway and placement into middle- and high-skilled employment in H-1B occupations and industries upon program completion.[1]

This brief presents an overview of intensive career pathway training models, including their primary elements and promising approaches from research. It also describes common successes and challenges that TechHire grantees faced in implementing the models. It concludes with profiles of grantees **Mount Wachusett Community College** and **Everett Community College**, which provide deeper, on-the-ground insights into the implementation experience.

Promising Approaches to the Model

Intensive career pathway training models are designed with long-term success in mind. They aim to help put students on career pathways that lead to durable employment and growth opportunities either through a degree or an industry credential. These forms of training may include work-based learning components, sequential course offerings, robust student supports that help improve retention rates, and strategies for engaging with students remotely.

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[1] U.S. Department of Labor, Employment and Training Administration, *Notice of Availability of Funds and Funding Opportunity Announcement for Grant Applications for H-1B TechHire Partnership Grants*, Washington, DC: U.S. Department of Labor, n.d., https://www.doleta.gov/grants/pdf/FOA-ETA-16-01.pdf.

Intensive career pathway training models are also more successful when employer partners and industry alignment are embedded into program development and execution. For these training models, employer partners are instrumental in helping educators understand how best to convey information and design course curricula.[2] Additionally, emerging research on long-term training best practices suggests that the key to workforce advancement is having programs that are geared toward training individuals to secure one or more industry-recognized credential and that offer robust academic and wraparound services.[3]

A compilation of research and a synthesis of TechHire grantees' experiences suggest that the following components play key roles in the success of long-term training models:

- Training that leads to a degree or industry-recognized credentials

- Participant engagement and retention strategies

- Strategies for increasing remote engagement and supports

Career Pathways

Career pathway programs typically include a series of short-term education and training modules that, over time, prepare students for highly skilled occupations in a particular industry. Career pathway approaches often offer "stackable credentials," a series of increasingly rigorous but manageable steps that each yield an industry-recognized credential. Those credentials "stack" together—one on top of the last—and each new one qualifies the learner for a more highly skilled job.[4]

In a study of accelerated health care training programs, the Brandeis University Institute on Assets and Social Policy found that workforce development must go beyond simply facilitating access to entry-level jobs, and instead take a more holistic approach centered on career advancement and long-term job quality.[5] Many workforce training providers have traditionally assumed that if jobseekers get to the first rung of the career ladder, they will advance up that ladder on their own. In reality, frontline workers often find themselves stuck in entry-level positions, or end up pursuing zigzagging career paths.[6]

In a study of the Accelerating Opportunity initiative, the Urban Institute states that further developing career pathways with labor-market outcomes could help students advance their

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[2] *Investing in Postsecondary Career Pathways* (Washington, DC: National Skills Coalition, 2017), https://www.nationalskillscoalition.org/resource/publications/investing-in-postsecondary-career-pathways/.

[3] Vanessa Bennet, Deborah Kobes, and Sara Lamback, *Framework for a High-Quality Pre-Apprenticeship* (Boston: JFF, 2020), https://www.jff.org/resources/framework-high-quality-pre-apprenticeship-program-it/.

[4] "About Career Pathways," CareerPathways.org, accessed October 15, 2020, https://career-pathways.org/about-career-pathways/.

[5] Brandeis University Institute on Assets and Social Policy, *Rethinking Career Pathways and Advancement in Health Care* (Waltham, MA: Brandeis University, n.d.), https://heller.brandeis.edu/iasp/pdfs/jobs/rethinking-career-pathways-and-advancement-in-health-care.pdf.

[6] Brandeis University, *Rethinking Career Pathways and Advancement in Health Care*.

career prospects beyond the jobs associated with entry-level credentials. The study's authors suggest that accelerated training programs look closely at how best to translate increases in credential attainment into long-term earnings gains.[7]

TechHire grantee **State Technical College of Missouri**, based in Linn, Missouri, offers a career pathway approach to training, first engaging students in a TechHire boot camp that focuses on employability skills, then offering a sequence of career-related trainings that begin with coursework for a maintenance technician certification and then proceed to longer-term, credit-based certificate and associate's degree programs.

Training That Leads to a Degree or Industry-Recognized Credentials

Career pathway models have proven to be effective training strategies for TechHire grantees, particularly community colleges. In a rapidly shifting economy where more than 80 percent of all jobs require some form of postsecondary education or training, workforce training programs that help participants advance to or obtain degrees are critical for workforce access and future career advancement opportunities.[8]

Many career pathway models established at community colleges are designed to meet the diverse needs of students, a growing number of whom are financially independent, raising families, attending school part time, and engaged in some form of work while balancing classes.[9] For example, some career pathway models allow students to combine work and education while earning in-demand credentials that advance their careers.

Additionally, many community colleges offer "stackable" credentials—sequential course offerings that allow students to "chunk" their learning by attaining a series of short-term but increasingly advanced certifications that eventually lead to a degree. And because such credentials are obtained over an extended period of time, the stackable model presents students with multiple entry and exit points and the opportunity to learn at a pace that makes the most sense for them, supporting a "learn and earn" approach to education.

Finally, career pathway programs typically include a wide range of supports to help students persist and succeed. For example, many TechHire grantees operating such models have woven in occupational skills instruction, career and job-readiness support, and general student support in order to best meet the diverse needs of students engaged in their training.

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[7] Theresa Anderson, Daniel Kuehn, Lauren Eyster, and Robert Lerman, *New Evidence on Integrated Career Pathways* (Washington, DC: Urban Institute, 2017), https://www.urban.org/research/publication/new-evidence-integrated-career-pathways/view/full_report.

[8] National Skills Coalition*, Investing in Postsecondary Career Pathways* (Washington, DC: National Skills Coalition, 2017), https://www.nationalskillscoalition.org/resource/publications/investing-in-postsecondary-career-pathways/.

[9] American Association of Community Colleges, *AACC 2020 Fact Sheet* (Washington, DC: American Association of Community Colleges, 2020), https://www.aacc.nche.edu/research-trends/fast-facts/aacc-2020-fact-sheet/.

Participant Engagement and Retention Strategies

Participant engagement and retention can be a significant challenge for intensive career pathway training models, given that most programs take longer to complete than accelerated training options. Programs may struggle to retain participants, particularly in a rapidly evolving economy where some students may need to choose between employment and continued education. In some cases, participants who receive job offers before completing the program may opt to withdraw from training due to the urgent need for employment and an inability to balance both education and a job. While this could be viewed as a positive outcome, completing training and earning a credential often results in longer-term employment and greater opportunities for career advancement.[10]

Training providers offering intensive career pathway training models have developed some promising strategies that can help programs boost retention and overall support for participants who might be choosing between continued education and employment. For example, many programs offer robust student support services to help with child care, immediate income needs, social service access, transitioning to remote operations, and more.

Models that focus on career advancement can and should be designed to allow participants to balance both work and school as much as possible. This can alleviate some of the pressure of balancing work and education, and can help participants maintain their progress toward in-demand credentials.

Programs that work directly with employer partners on participant engagement and curriculum development have seen success in retaining participants. For example, some programs have been able to work with their employer partners to help them understand the importance of career pathway models and associated credentials. At the same time, they have the opportunity to encourage employers to adopt practices that facilitate continued learning, like expanded tuition reimbursement and flexible scheduling.[11]

Conclusion

Intensive career pathway training models offer participants the opportunity to earn a degree or multiple stackable credentials, and often include opportunities for work-based learning. However, because they take longer to complete, participants may find it difficult to stay engaged and balance training with their other responsibilities. Programs can implement a variety of strategies to help participants overcome the challenges they face and capitalize on the benefits of long-term training models. Embedding robust support services into the program, offering

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[10] Lauren Eyster, *Building Workforce Success: Advancing Careers with Multiple Postsecondary Credentials* (Washington, DC: Urban Institute, 2018), https://www.urban.org/research/publication/building-workforce-success.

[11] Randall Wilson, "H-1B TechHire Grantees Engaging Youth, Ages 25-29 for Long-Term Success," WorforceGPS (blog), August 15, 2019, https://h1btechhire.workforcegps.org/blog/general/2018/06/08/19/52/H-1B-TechHire-Grantees-Engaging-Youth-ages-25-29-for-Long-term-Success.

remote learning opportunities or adopting hybrid instructional models, and advocating for employer practices that facilitate continued learning may boost engagement and retention.

GRANTEE PROFILE

Mount Wachusett Community College:
Tailoring Training to Target Populations

Mount Wachusett Community College (MWCC) in Gardner, Massachusetts, leads the Massachusetts Advanced Manufacturing TechHire Consortium (MassAMTC), a large partnership that includes four community colleges, five workforce boards, five career centers, and several employers. Through an H-1B TechHire Partnership grant, the consortium offers training for advanced manufacturing occupations, including quality technicians and inspectors; machine tool operators, machinists, testers, sorters, samplers, and weighers; electrical and electronics repair technicians; and commercial and industrial equipment repair technicians. This profile focuses on the consortium's short-term, accelerated training programs that lead to jobs that require mid- or high-level skills and have strong growth potential. The programs primarily target youth and young adults, as well as other unemployed, underemployed, and dislocated and incumbent worker populations in the Massachusetts counties of Worcester, Middlesex, and Essex. Specific information about each training program is provided in Table 1.

Table 1: MassAMTC Training Models

Program Name	Credentials Awarded	Training Format	Training Focus Areas
Quality Training	American Society for Quality (ASQ) Six Sigma Yellow Belt certification (exam required)	120+ hour training - Test prep support	- Quality systems - Measurement and inspection - Root cause analysis, corrective and preventive action (CAPA) - Lean Six Sigma methodologies
Robotics and Automation Technician Training	- FANUC "Handling Tool Operations and Programming" Cert. Level I - Prerequisite for 40-hour Introduction to Robotics in Automation program	Includes online modules and hands-on activities using training equipment	- Safety and standard operating procedures - Programmable logic controllers - Fluid systems (hydraulics and pneumatics) - Sensors - Industrial electrical systems - Mechanical drives - Mechatronics troubleshooting
Computer Numerical Control (CNC) Machine Operator Training	Manufacturing Skills Standards Council Certified Production Technician (CPT) Quality and Measurements credential (exam required)	280-hour NIMS standard training or shorter CPT and MACWIC training 80+ hours of hands-on	- Machining, shop math, and print reading - Introduction to quality, manufacturing, and machining processes - Metrology, measurement, and inspection

- National Institute of Metalworking Standards (NIMS) certification
- Manufacturing Advancement Center Workforce Innovation Collaborative (MACWIC) Level 2 certification

instruction with industrial equipment

- Technical communications and basic computer skills

Tailored Training Strategies

Mount Wachusett's model is designed with a focus on helping participants find rewarding careers. Trainings were developed to align with industry-recognized credentials while also incorporating skills that fill needs identified by employer partners. The grantee also offers additional training beyond initial certifications.

Reflecting on their TechHire experience, members of the Mount Wachusett team shared several lessons learned that relate to the importance of tailoring training and supports to target populations, including youth and young adults. This tailored approach to program design and implementation can serve as a model for other organizations looking to target specific populations. Here's a look at three best practices that emerged from Mount Wachusett's TechHire grant.

Continuously assess, adapt, and improve curricula based on changing needs.

Adaptive curriculum development has played a major role in MassAMTC's success. Mount Wachusett has the capability and the capacity to develop industry-informed curricula and quickly tailor course offerings based on both student and industry needs. Robust employer partnerships provide the team with critical insight into employer needs and areas of focus. Through the TechHire grant, Mount Wachusett was able to hire a dedicated learning specialist. Having a staff member who had the ability to focus on developing, refining, and improving curricula allowed Mount Wachusett to expand on "off the shelf" curriculum offerings and design courses that align with industry-recognized credentials.

As the COVID-19 pandemic took hold, the team pivoted to offer training online and now finds that hybrid approaches work best. The hybrid model allows students to learn the curriculum online, meet with the instructors and the career development coach via Zoom as needed, and

Strong Student Relationships Yield Results

Developing and maintaining close relationships with young people and partners was one of the most important factors in the success of Mount Wachusett's TechHire grant, said Briana Peña, the school's career development coach.

"I can tell the difference when I get to know my students—whether it is connecting with them on site or virtually [because of] COVID-19—understanding their schedule preferences, their needs, [etc.]" she said. "The ability to have a one-on-one relationship with them is a huge piece. It also allows me to get data on hiring and job placement. People keep that information close, but when you have that close relationship, they are much more willing to give it to you."

then get hands-on experience in the classroom. It also enables students to take courses asynchronously, which gives them more flexibility and reduces scheduling conflicts.

Prioritize supportive relationships to address student needs.

Mount Wachusett's career development coach, Briana Peña, was involved in recruitment and marketing in addition to supporting students through the program and into career opportunities. The grant team found that an in-house recruitment position was critical because the college admissions team focuses mainly on credit-based programs and could only provide limited support. The dedicated support from the career development coach helped the grantee ensure that candidates were the right fit for the program and identify customized needs (such as English language courses) that the team could help participants address prior to enrollment.

Use recruitment and retention strategies that are targeted to young people.

Recruiting 17-to-29-year olds was challenging for Mount Wachusett, especially for the American Society for Quality (ASQ) systems certification training programs, for which it is helpful to have prior experience. To better connect with that demographic group, the grantee formed a close partnership with a regional career center that has a large youth clientele, creating a strong pipeline of young people that the college may not have been able to access otherwise. Additionally, Mount Wachusett has taken a flexible approach to scheduling, offering trainings at various times during the day and in the evening to accommodate students' work schedules and other commitments. The team also extended the duration of some programs when students in a particular cohort needed more time to finish. "Flexibility in scheduling is key, as long as we can prepare them to meet the learning objectives and certification requirements and, most importantly, get into a good job," said John Henshaw, Mount Wachusett's grant manager and workforce development dean.

Other recruiting efforts that targeted youth included posting program announcements on social media and job search sites, and using Google Voice to communicate with students via text. "Recruitment of youth felt impossible the first year but we kept plugging away, trying different things, and we made it happen," Peña recalled. "At the end of the day, it's all about thinking outside the box."

Next Steps for MassAMTC

Mount Wachusett's ability to be flexible and customize its approaches—from recruiting, to training, to employment—have yielded strong outcomes for students and employers. The grantee plans to continue offering several advanced manufacturing training programs after the conclusion of the TechHire grant. Continued flexibility and an openness to tailoring offerings based on employer needs, student strengths, and market trends will allow the college to make the most of future opportunities. The importance of flexibility has become especially apparent during the COVID-19 pandemic, when it became necessary to adopt a hybrid model with a mix of remote and in-person offerings.

GRANTEE PROFILE

Everett Community College
Long-Term Training and Associate Career Pathway Models

Everett Community College, based in Everett, Washington, leads the TechHire MechaWA Partnership Project, a TechHire-funded consortium of five Washington community colleges (Renton Technical College, Shoreline Community College, North Seattle College, South Seattle College, and Everett Community College). This profile focuses on the consortium's modularized, competency-based career pathway to award mechatronics associate of technical arts (ATA) degrees. Additionally, short-term certificates are offered to participants upon completion, to jump-start careers in aerospace and advanced manufacturing for underemployed youth ages 17 to 29 facing barriers to employment. The MechaWA program prepares participants to become industrial maintenance technicians, mechatronics technicians, and service technicians.

Though training pathways culminating in a degree can offer unique opportunities for career advancement, the longer duration of the training can present unique challenges to participant engagement and completion. The table below summarizes the strategies that MechaWA developed for addressing these challenges.

Long-Term Training Element	Key Strategies
Training	Share personnel and equipment across a consortium or community college system to leverage resources and reduce costs.
Distance Learning	- Consider hybrid instructional models. - Consider asynchronous approaches rather than live class sessions. - Use social media and text messaging to keep participants engaged.
Coaching and Case Management	Keep participants paired with the same navigator (student support specialist) from intake to job placement in order to build trust and improve retention.
Employer Partnerships	Involve employers beyond accreditation-mandated advisory councils. Include employer partners in curriculum development, faculty development, and participant assessment.

Career Pathway Training Strategies

The MechaWA consortium promotes accelerated learning opportunities using prior learning assessment tools and online diagnostic tests that identify competency levels and lead to short-term, stackable credentials and, eventually, a mechatronics ATA degree.

Additionally, MechaWA uses a for-credit, employer-based paid internship program to leverage learning opportunities and create viable pathways to employment for TechHire participants.

Reflecting on their TechHire experience, Everett Community College leaders shared several promising practices related to the importance of long-term career pathway training models. Here's a look at three best practices that emerged from MechaWA's TechHire grant.

Shared Programming within the Consortium

MechaWA's career pathway training model stretches across the consortium, covering both mechanical and electronic programming for the mechatronics ATA degree. While Everett Community College and Renton Technical College have their own standalone programs for the training, Shoreline Community College and North Seattle College have worked in tandem to co-develop programming to advance participants through the degree. Shoreline Community College hosts the mechanical programming of the mechatronics ATA degree, and North Seattle College hosts the electronic programming. As a result, MechaWA is able to share equipment and staff members from the mechatronics career pathway across multiple colleges to leverage resources and cut costs. South Seattle College operates as a sort of pipeline to get students into North Seattle's and Shoreline's programming and offers a short-term certificate called MechaReady, which prepares students for entering the mechatronics program.

Promising Employer Partnerships

Boeing has proved to be a strong employer partner for MechaWA as the consortium has worked toward job placement for TechHire graduates. Boeing has been highly involved in MechaWA's degree pathway program, including curriculum design and faculty development.

Specifically, Boeing has played an active role in the curriculum by ensuring that the training is aligned with industry standards. MechaWA also uses Boeing's hiring exam as a pre-assessment tool. Participants who achieve a passing score can later bypass the hiring exam during the hiring process.

Boeing has also contributed to faculty development by paying for relevant professional development training. The company continues to play an active and vibrant role in MechaWA's success by serving on its advisory board.

Hybrid Online Training

Before 2020, MechaWA introduced a hybrid online training curriculum that used the curriculum developed by the Advanced Manufacturing Technical Education Collaborative (AMTEC) in Owensboro, Kentucky. This model allowed for both virtual and in-person instruction and was useful in catering to a variety of learners.

When social distancing protocols were put in place in March 2020, MechaWA advocated for Washington's state board to purchase a one-year unlimited license to AMTEC's online curriculum for all colleges with mechatronics programs. This allowed students across the state—not just those attending MechaWA consortium colleges—to access the online training curriculum. Additionally, the state board worked with AMTEC to convert the curriculum to Canvas, the college's primary learning management system. Continuing to use a system that students were already familiar with significantly helped students' transition to remote learning.

Overall, MechaWA's use of hybrid and fully remote programming has helped it to maintain programmatic success and retain students during the global pandemic. Even more importantly, it has been able to swiftly pivot to meet the needs of students and help them continue to advance toward their ATA degrees.

Navigator Model for Student Support

MechaWA's TechHire grant utilizes student support coaches known as "navigators" who are available at every participating college. This model stems from a best practice that was developed during MechaWA's Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant work. Navigators are responsible for recruitment, general student support, academic advising, resource and social service connections, employment transition services, and job placement. TechHire participants work with their assigned navigator from the program's start to its finish. The consistency of participant-navigator matches helps build trust and retention.

Additionally, MechaWA has one navigator who works closely with its local workforce development council and conducts heavy outreach to local community-based organizations to promote programming consortium-wide. "This particular role helps form a resource for all navigators, as they have a hold on the wider workforce system and programs statewide," said Jill Thornton, MechaWA's TechHire project director. "This has been a great practice."

Participant Success Story

Chris, an alumnus of the MechaWA TechHire program, originally enrolled at Everett Community College through its Youth Re-Engagement Program, which allows participants to earn a high school diploma and college credit. After earning his high school credential, Chris enrolled in MechaWA's mechatronics program, where he discovered his interest in robotics, programmable logic controllers, and electrical circuits. While enrolled in the program, he secured an internship with Boeing, where he got the opportunity to apply the skills he learned in the classroom. Chris now works as a field technician for MTorres America, a contractor for Boeing, and plans to pursue a bachelor's degree in electrical engineering.

Conclusion

Career pathway models are a proven way to help support participants to advance toward gainful employment and meet the needs and expectations of employers looking for qualified, credentialed applicants to fill open positions. The strategies outlined in this profile demonstrate how providers and other organizations, including community colleges, nonprofits, and workforce boards, can increase participant engagement and student support while using degree-focused models to make career pathways viable and accessible.