

The Post-Program Experiences of Aerospace Joint Apprenticeship Committee (AJAC) Manufacturing Academy (MA) Graduates



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1. Background

The Aerospace Joint Apprenticeship Committee (AJAC) was awarded a Department of Labor Apprenticeship: Closing the Skills Gap grant (Grant IDHG-343522060A53) in the winter of 2020. The intent of this grant is to expand statewide efforts to increase the competitiveness of Washington State's Aerospace and advanced manufacturing initiatives by: (1) developing just-in-time high quality feedback loops from employers, colleges and apprentices to drive the design and right mix of occupational training programs that meet industry needs; (2) increasing the number and type of manufacturing and training agents who offer apprenticeship opportunities; and (3) ensuring seamless K-16 transitions from secondary to post-secondary institutions and pre-apprenticeship to apprenticeship programs. Partners in the Manufacturing Apprenticeship Partnership for Excellence and Expansion (MAPX) led by AJAC, include K-16, industry, labor, workforce and social service systems. The grant was launched during the COVID epidemic.

2. Report Purpose

AJAC and other partners engaged in MAPX are committed to using the voice of participants to continuously inform and guide the work underway.

This report examines one of the primary grant interventions, by focusing on the experiences of nine individuals who participated in AJAC's Manufacturing Academy (MA), an apprenticeship preparation program. The feedback of MA graduates will be used to make program improvements that lead to more seamless transitions from the MA program to registered apprenticeship pathways and manufacturing-related employment.

3. Report Sources and Methods

AJAC contracted with Business Government Community Connections, a national research firm based in Seattle, to conduct interviews with MA Graduates and write this report. BGCC specializes in participatory research in the areas of workforce development. Direct quotes from MA Graduates are woven throughout this report.



AJAC selected a diverse (gender, ethnicity, age, income) group of individuals who had graduated from their 2020 and 2021 online MA 10 week training course to participate in interviews. These individuals received a stipend for sharing their expertise and advice.

Due to COVID restrictions BGCC interviewed MA graduates by telephone or Zoom, rather than in person. Interviews ranged from 45 to 70 minutes, averaging 57 minutes. MA Graduates responded to a brief set of questions designed to garner their reasons for enrolling in the MA program, impressions of the program, employment experiences since leaving and recommendations for improvement. (See Attachment A). Their responses were coded to identify main themes and summarized later in this report.

4. Description of MA Graduates Who Responded to Interviews

Gender and Race: The MA Graduates who generously shared their time to participate in interviews came from very different education and employment backgrounds. The group included six males and three females. Six were White, two were African American and one was Asian.

Source and Amount of Income: At the time of enrollment to the program two-thirds of the MA Graduates were low income, with income levels below 200% of the median income, and three had income levels slightly above this amount. In the year leading up to enrollment at some point in time five were employed, and five were receiving unemployment. Other income sources for two individuals included child support, and one person received social security disability assistance.

Head of Household: Four MA Graduates were a head of household, and two were caring for children. One woman had four school aged children ranging from first to tenth grade and one had a two- year-old. Both were single parents who had to negotiate home care, and/or home schooling for their children, due to COVID-related childcare and school closures.



Online learning in the MA program enabled them to balance school and family responsibilities.

Military Status: One of the young men in the MA was currently enlisted in the Army Reserve and was under contract until 2023. When he initially enlisted he was a Running Start student, still in high school, and too young to take basic training until he turned 18.

Highest Level of Education: The education and employment backgrounds of MA students were varied and included three individuals who had earned General Equivalency Degrees (GEDs); one who had received a high school diploma; one who had an Associate Degree (AA); one who held a Bachelor's Degree (BA) and one who had a PhD. One MA Graduate

was currently enrolled in college and working towards completing his AA Degree. These degrees were not focused on manufacturing-related careers.

Previous Employment: The employment backgrounds of individuals also differed greatly, though most cited an interest in manufacturing when they enrolled in MA. Examples of their job titles prior to entering MA included statistician, information technology contractor, retail worker, long haul truck driver, assembly worker, quality control inspector, chemical process operator and project manager. A few had experienced COVID-related layoffs and opted to use their time off work to build or hone new skills through enrolling in the MA. Most learned about the training through the Indeed website. One received a referral from a family member, and another had heard about AJAC at a job fair she attended five years prior to attending MA. Other referral sources included a case manager at the Washington State Department of Social & Health Services, a relative, and a friend who was employed in a human service organization in Spokane.

5. Description of Manufacturing Academy by MA Graduates

MA Graduates described AJAC's Manufacturing Academy as a 10 week pre-apprenticeship training program. For many it was important that the program resulted in two industry-recognized credentials (Advanced Manufacturing Basics 1 and II). Several noted that the curriculum helped prepare individuals to enter manufacturing jobs and learn about how to access opportunities that would lead to long-term employment and career advancement opportunities for graduates. One MA Graduate said, "I like that even though the class was short – it gave me some tangible things to add to my resume. I am one of the students who did not have much formal training so this makes employers see that I have a certain set of skills that they value." These skills, according to MA Graduates include machining, metal fabrication, composites and assembly occupations. One person said, "We also learn the vocabulary of manufacturing. That may not sound big, but because of that we start to present as a person who should be working in this industry." MA Graduates also reported that they had opportunities in the class to work on resumes and other strategies that will help them get a job. Two participants noted that it was really important that the

MA class gave them a chance to earn college credits and four noted that they appreciated the chance to learn about advanced manufacturing career pathways. They liked the curriculum modules on safety, blueprint reading, shop math and work on micrometers, calipers, stainless steel rulers, and other tools. All appreciated the kits of tools they received to accompany their online work. Four MA Graduates also received Chromebooks. All thought that the Zoom classes and CANVAS online learning platform they used worked well, though four noted that due to COVID they did not have an opportunity to earn a forklift certificate or utilize equipment that might have been available if they had taken the MA program.

6. MA Graduate Impressions of Course Content

The MA Instructors are described as being informative, well-prepared, patient and caring. The only criticism voiced by three MA Graduates was that instructors were too patient with students. One woman said, "Participation in the class should be treated like a job site, where people are required to be respectful and professional."

The curriculum was regarded as relevant and interesting. Four MA Graduates, all of whom

had found manufacturing jobs after completing the training, drew upon their post-employment experiences to recommend additions in the MA curriculum. Suggestions were made to introduce additional "high level" information about:

- How to balance safety, productivity and quality;
- Facility layout and material flow optimization;
- The connections between information technology (IT) and manufacturing career paths;
- CNC machine G codes and M codes in order to promote an understanding of CNC programming languages;
- HAAS CNC Computer links in class, or provide information and access to these resources;
- Measuring machines and systems;
- Continuing education pathways, manufacturing and related careers;
- Apprenticeships and which companies are most likely to have near term openings; and
- How to use the AJAC website as a resource for job development.

In addition, five MA Graduates requested that the MA staff stay better connected with them after the program ends. One MA Graduate who had not yet found a steady job said,

“I know I would be a lot more diligent about job search if someone were checking up with me, and asking how I was doing.” Another person said, “I could use some debriefing with people about whether to apply for, or accept a job that I knew in my heart was not the right fit for me. But sometimes I get stuck in the present and don’t think long term so I might miss opportunities that will move me to the future.”

7. MA Graduate Reasons for Entering AJAC, Post-MA Experiences and Three Year Career Aspirations

The priorities, aims, experiences and longer-term career aspirations of MA Graduates varied greatly, underscoring how the MA program fills many different purposes. For example, some regarded the AJAC training as an opportunity to:

- Fill gaps in their manufacturing related education, and/or experience;
- Learn more about manufacturing pathways and career opportunities;
- Gain practical frontline information about the manufacturing industry necessary to demonstrate that the core transferable management level skills they already have are particularly impressive because they are informed by in the ground level work;
- Develop the contacts necessary to get into apprenticeships; and
- Earn core transferable skills and certificates that they could apply to other trades-related jobs or professions.

Notably, as the chart below shows, despite the economic challenges that our state and nation were facing, some MA Graduates were able to find work, and most were confident that they were on the road to achieving their three-year career goals. Some were also on the cusp of entering apprenticeships. Their direct quotes are embedded in the following chart.



Because of MA I learned terminology that this industry uses - that gives me street cred.

When people in management or any oversight jobs in company have this knowledge they will do their job better.

– Apprentice

I learned some mechanical skills at AJAC which will also likely be included in some way on the Firefighter exam. All of this is part of the job. And of course I earned through AJAC the OSHA 10 and CPR certificates are relevant.

– MA Graduate

REASONS FOR ENROLLING IN AJAC

I was a Quality Inspector in a manufacturing related company but did not have frontline experience and wanted to learn why workers do what they do, not just judge how they are supposed to do things.

EXPERIENCES AFTER EXITING

Currently I am still looking for work in Quality Control, or a similar area, as I vested a lot of time (over 10 years before being laid off because of COVID) and think now I will be more competitive. If that does not work, I will have skills to work in another capacity in manufacturing.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I will be a lead or quality engineer. I believe that things will work out and that my skills learned through AJAC and my experience is transferable to many different trades-related industries.

REASONS FOR ENROLLING IN AJAC

I enrolled because I was laid off from a statistical analysis job and wanted to use the time when I was receiving unemployment to build my skills. I thought AJAC would offer me some skills for the job I am ultimately shooting for – an EMS and hopefully Firefighter. I really felt I needed more mechanical training and knowledge.

EXPERIENCES AFTER EXITING

For now, I am still using my statistical analysis skills, a career which I prepared for in college, but I am also enrolled in EMS school, and preparing to be a firefighter. I have already applied MA skills in my EMS class where I had to do some blueprint related reading where I had to visualize getting equipment into small crawl spaces.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I know that getting hired to be a firefighter is super competitive so if I am not working as an EMS or firefighter I will be in an apprenticeship in another trade. I am not meant to sit at a desk.

Before AJAC I was told you have no experience – and even though I really wanted to work in aerospace no doors were open. Now I think they will be. I just have to be patient.

– MA Graduate

I think people will see me differently in my role as a Project Manager now because of the experience that AJAC gave me. I will convey a more balanced and relatable set of skills.

– MA Graduate

REASONS FOR ENROLLING IN AJAC

I heard about AJAC years ago at a job fair. I have a retail management background, but what I really want is to get a job at an aerospace company. I tried before but could not get in the door.

EXPERIENCES AFTER EXITING

Since leaving the program I have worked in shipping and receiving in a local cosmetic company. The company produces organic, sustainable ingredients, using a cruelty-free supply chain. I am glad I am working, but don't plan to stay in shipping. But it is in many ways manufacturing-related experience so I am building my career.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I expect to be a machinist apprentice. The economy will improve and so will my job skills and opportunities to get into an apprenticeship.

REASONS FOR ENROLLING IN AJAC

I was working as a Project Manager and laid off because of COVID. I thought that having some “ground level” knowledge and exposure in manufacturing will strengthen my salability as a human resources or project manager, and possibly even as a sole proprietor for a firm that provides these kinds of services to manufacturing firms.

EXPERIENCES AFTER EXITING

I have applied for jobs, but not found any yet. Scheduling has been a challenge because I have a young toddler. I am receiving unemployment but continuing to look for work. Unfortunately, the CBO that was helping me when I was in AJAC decided that I was no longer eligible for gas cards and other assistance – even though my only income is unemployment- it was a high amount and considered over income. They dropped me as a client.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I will likely be employed under contract as a Human Resources or Project Manager consultant – maybe with a manufacturing or trades-related company. I am researching the Washington State Self-Employment Assistance Program (SEAP) which helps unemployed workers create new businesses and job opportunities for other workers through self-employment.

With the kickstart I got from AJAC I am now on the road to a new career and I know that it is a good choice for me. Changing careers can be stressful but I feel that I have the basic information and skills needed to do that.

– MA Graduate

AJAC helped me get a bigger picture of the manufacturing sector. I loved the cross training that my old aerospace employer did, and AJAC also did this by telling us about different career paths. I see better now how my previous skills and experience can morph to get me where I want.

– MA Graduate

REASONS FOR ENROLLING IN AJAC

I had been a truck driver. Long hours on the road. I was ready for a change and really had a goal to be in a Tool & Die Apprenticeship.

EXPERIENCES AFTER EXITING

Currently I am working in a company which addresses metal fatigue in airplanes. I am learning how to remove burrs from metal or plastic pipe edges and getting milling, cutting, drilling and grinding experience. Also, I briefly worked at two other manufacturing companies including one which made HVAC products, and one which produced rotary actuators. One job ended due to COVID and the other I left because of health reasons.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I will be in a Tool & Die Apprenticeship.

REASONS FOR ENROLLING IN AJAC

I knew the area I was working in (aerospace) was where I wanted to be, but in a different capacity. I planned to deepen my skills at AJAC so employers would see me differently.

EXPERIENCES AFTER EXITING

I am currently on call back from the machinist union and company where I worked but have not heard anything. I worked briefly as a shipping and receiving clerk at a furniture warehouse until COVID layoffs happened. If I get called back to my old aerospace job as a chemical process operator I will go but will keep looking to make the leap to a different position.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I will be working in Supply Chain Management, hopefully at an aerospace company, but in some kind of management capacity.

When I interview for jobs people say ‘why are you leaving IT?’ I say because I want to design something with my hands – From my vantage point working in IT is stressful, and more about fixing problems than creating solutions.

– MA Graduate

For me, the MA class worked perfectly. The teachers were good and easy going. I feel like I am on the way to being a machine operator.

– MA Graduate

REASONS FOR ENROLLING IN AJAC

I wanted to make a career change. For me happiness is more important than money. I had been working in the IT world, and thought maybe I could find a way to capitalize on some of that but in an environment which was focused on manufacturing.

EXPERIENCES AFTER EXITING

I worked briefly in a pellet and gas stove manufacturing company and currently have job applications in to 20 companies. I expect to find the right manufacturing company soon and am lucky because in the meantime I can use my tech skills to do IT contract work.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I expect to be happily married and working in a manufacturing shop job – not a production job. I want to be creative and make things.

REASONS FOR ENROLLING IN AJAC

I had done some really repetitive manufacturing assembly work, but wanted to do something more diverse and challenging. I think that manufacturing assembly is a good occupation, don't get me wrong, but I was ready for more.

EXPERIENCES AFTER EXITING

I am finishing my AA in general studies and interviewing for machine operator jobs – I have an interview today! Wish me luck.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I will continue to advance in my career either as a machine operator or possibly as a plumber's apprentice as I really want to explore that area more too.

AJAC did a great job of teaching the MA online. In my opinion they made the best out of a potential bad situation and because the class was offered on line I was able to take it from another area of the state.

– MA Graduate

REASONS FOR ENROLLING IN AJAC

I had received earlier training in the Army Reserves in manufacturing but it was pretty limited. I also worked with sheet metal before entering AJAC, but was laid off. These are great experiences that I wanted to build on through AJAC. I did not want to waste time while collecting unemployment so enrolled in MA.

EXPERIENCES AFTER EXITING

I am working as a CNC Machine Operator in Eastern Washington in a knife production company that is familiar with AJAC. It is a production shop, and even though I am really looking for a design shop you need to start somewhere and I have great benefits. I am hoping to be in an apprenticeship but the company where I am working only employs one apprentice at a time, and they have currently have one.

CAREER OUTLOOK (THREE YEARS FROM NOW)

I am still in the Army reserves, and might re-up, or even consider enlisting full time. I don't need to decide until I am 23. If I get into a Machining Apprenticeship that might work too. Whatever happens, I am going to be working in manufacturing whether serving my country or working in a company. I can see myself with a journeyman's card. Good things lie ahead.

8. Recommendations

The following suggestions were made by MA Graduates. AJAC may want to:

- Continue offering online courses as one of their ongoing program options as these classes make it possible for some people who could otherwise not attend the class to do so.
- Implement the course content recommendations mentioned earlier in Section 6 of this report.
- Take steps to identify MA Graduates who are in particular need of gas cards, energy assistance and/or other subsidies, and note whether they remain eligible for these types of assistance if they still require them when they end the program. If they are no longer eligible, but still economically vulnerable, AJAC should make an effort to connect them with other resources, if applicable. Otherwise, they may be constrained in their quest for jobs.
- Sponsor an event in the future for MA Graduates who were engaged in the online classes to meet and ask them to invite a representative from their company to talk about the kinds of manufacturing jobs and career paths their company offers.



- Remain in close contact with MA Graduates after they exit the program to find out how they are doing, share job leads and discuss challenges they may be having at work, or when applying for or interviewing for jobs.

9. Summary Observations

The interviews reveal that AJAC is doing a good job in adapting their MA to online instruction, and in providing MA students with the instruction, encouragement and guidance they need to learn about and begin to prepare for, or advance in careers in manufacturing. The MA program is offering training in the areas that employers want and need.

AJAC may also want to focus more strongly on one area - post-program follow-up and set up a system for routinely tracking the employment status of MA Graduates. This could include documenting whether and why they pursued, accessed, retained or left certain jobs or apprenticeships. The information gathered would likely lead to more timely feedback loops about the job market, improvements in the overall AJAC model and increased job placements. During follow-up calls AJAC staff could also share updated job availability information with individuals who are ready to make a career change or may have left their job and need some advice about next steps.

Clearly, the MA program is filling a vital need in the career access and advancement experiences of workers and positively influencing their career trajectories. One MA Graduate said, “The interesting thing about a class like this is that on the surface we are all so different – but a closer look reveals that we are also all so similar, because we are trying to improve our skills and careers. We may have different career goals, different skills and different dreams, but the labor market needs all of us to really thrive. AJAC’s MA program may be short in duration – but it’s positive influence on our lives is long term.”



Aerospace Joint Apprenticeship Committee (AJAC) Manufacturing Academy Graduates

Attachment A. AJAC Interview Tool

1. How did you find out about AJAC's MA program?
2. Why did you decide to enroll?
3. What were your impressions of the MA program?
4. What did you learn in the program? Do you think what you learned had any influence, on your getting job, and/or are advancing in your career? Please explain.
5. What have you been doing since leaving the program? For example, are you currently working or engaged in an apprenticeship or hoping to become an apprentice? Or pursuing more education?
6. Three years from now what do you hope to be doing? Is anything standing in the way of your doing this? Please explain.
7. Do you have any recommendations for AJAC about how to improve the MA program?

Your feedback is valued and will be used to improve the MA program and work of AJAC.
We really appreciate your taking the time to share your expertise and insights.



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