Workforce Development in 2023

MPT Expo "Ask the Expert" stage examines trends, topics, and future considerations

Matthew Jaster, Senior Editor

At the Motion + Power Technology Expo in Detroit, I had the privilege to sit and discuss workforce development challenges with Kris Ward, senior director, strategy, and business development at SME, Kika Young, president, Forest City Gear, Mary Ellen Doran, director, emerging technology and executive director for the AGMA Foundation and Megan Schrauben, executive director, MiSTEM Network. The following is an edited transcript of this panel discussion. (Special thanks to Forest City Gear for sponsoring this live event.)

What tools and resources are essential to help solve workforce development challenges in manufacturing today?

Ward: The workforce system is extraordinarily difficult for manufacturers to navigate. We think it's one of the biggest challenges because you have an educational system, you have a workforce system, you have community-based organizations. So many organizations say they are doing wonderful things, but it's difficult to identify what the right programs and partners are. There are resources that are needed to take those local successes and scale them nationally so that we're not recreating the wheel every time a new initiative comes out. The system needs to really kind of bring itself together more effectively to support manufacturers today.

Young: In the area that we're in, most of the local high schools have some STEM and some manufacturing programs. We support those and are very active in the development of new ones.

What's frustrating to us is we're within 10 or 15 miles of 15 different school districts, seven of whom are doing a great job on this, but they're not connected to each other at all. So, we must have redundancy in what we're doing to support the different organizations, and that's just the schools. There's a ton of other programs too, so it can be difficult to navigate.

The tool most important for FCG is determining what partnerships make the best sense for us. The goal is finding those quality partnerships and utilizing continuing education programs.

Doran: Well, I think one thing we need to do is make it simpler. We need to make sure that we're not reinventing the wheel. We're not making people jump through four and five hoops. The AGMA Foundation has a tool kit for manufacturers that they can download, slap their logo on and go out to a workforce event and be able to have information about the gear industry at their fingertips so they don't have to do it themselves. So, it's making it simpler, building those lines of communication and getting as many kids as we can into the workforce.

Schrauben: I think part of the reason why STEM was created in the first place was to try to scale, but also to scale those best practices so that you don't have to connect with every single school separately. That's where our MiSTEM regional directors can be of help—they would know all the different assets that are available in that local community.

But I think another piece we need to really consider is that we tend to think about our short-term needs and so a lot of our programing is focused on the high school level or just after graduation. What we need to start asking is, how do we become part of the community and engage with educators early on in a child's life? This allows the community, and our students, to be more aware of what that company does and what type of career opportunities are out there.

What are some successful strategies for manufacturers to attract and retain a more diverse workforce?

Ward: The manufacturer must be willing to address their culture, because as you look at diverse populations,such as people who are uniquely abled or neurodivergent, you cannot bring individuals into an organization and expect it to be business as usual.

So, the first thing that must happen is a company's got to commit to making an inclusive environment and then finding those organizations again that can help you. The State of Michigan, for example, has an absolutely wonderful CTE program within the justice system. I've had the privilege of actually visiting the Jackson State Prison. Their CTE programing is so amazing. They only have, I think the last time I looked, a six percent recidivism rate. And you look nationally, that recidivism rate is probably ten times, if not more than that. So there are wonderful pockets of opportunity of bringing people to the manufacturing sector. It's, again, a challenge in the system to find those organizations that can help you connect those dots.

SME has been spending an awful lot of time in the past couple of years trying to make those connections and helping organizations bring that diverse talent in as part of their attraction strategy.

Doran: And building off what Kris said, you have to look at the retention part of the equation, too. Once you get them in the door, once they figure out what the job is, you need to figure out what their needs are on an individual basis. It's not all money for everyone. It's time off, it's flexibility. It's feeling like they belong and are part of the workforce and the team that is working on the shop floor.

Schrauben: Research shows that basically students make up their mind of whether they even belong in a particular career field by third or fourth grade. So, what we're talking about is how do we get in front of them or engage with their families at an earlier level? And that could be done by opening your space to host a family STEM night, and being very intentional about the employees that you put in front of those students so they see people who are just like them in that space.

How do we get in front of them at the earlier ages where they're not essentially already being shown pictures of what's possible and what careers they potentially belong in?

What role does personality, geography and opportunity play in an employee's development process and how can organizations keep in-house skilled talent long term?

Ward: I 100 percent agree with the comments about retention and making sure people see clear career pathways; getting into job progression programs because someone coming in the door is not going to be at the same talent or skill level as someone who's been with the organization for 30 years. So, you're ensuring you're going to have the skills long term as an employer, but also that it becomes that mutual relationship between the employee and employer, where that employee now is going to be a lifelong learner.
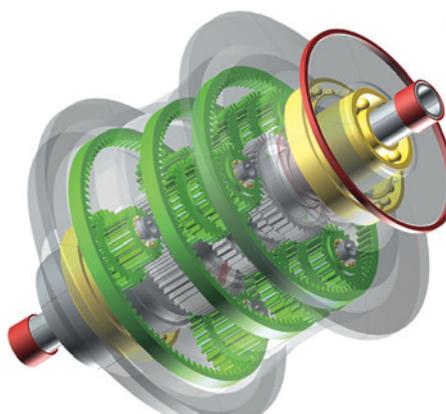
Now you've got to think about things like cybersecurity. You've got to think about data collection. Maybe the OEMs are supplying or asking for things that you're not prepared for yet. You need someone who's able to learn to build those skills so that you can respond to those market conditions.

Young: Retention is a big part for us as well. We have a very, very low turnover rate amongst employees. As long as they make it past the first two years, then our turnover is very, very low. But retaining your talent is important, especially in a close and competitive industry like we're in. Most people aren't quitting their job, right? They're quitting the people at their job.

We spend—the majority of us—spend more time with the people that we're at work with than we do with our own families, spouses, or kids. So, making sure that you're reflecting the values that are going to keep people with you is really important to us at FCG.

We have a list of core values that are truly important to us. And the very first one is families matter and always will. So, we know that we are not our employee's family. They're working to support their family. So being able to be flexible with folks when they're going through a difficult period in their lives or when they need help is a big part of retaining our workforce and just making it not a place that they hate going into every day.

Schrauben: Our message to the state is that authentic, real-world ways of solving problems is what engages students in their learning.So, moving away from a siloed textbook approach—the primary way that we probably all learned in school - and having it be much more like working with the company next door and saying, "What problems are you working on?"

What we've seen in some of these programs is really that people want to feel like they are part of their community. Are you providing incentives for your employees to have volunteer hours in their local community?

One of the successful programs we've seen is a 4th grade engineering design challenge every single year. Basically, the Science and the English Language Arts (ELA) teachers work together on these problems.

And then the manufacturing groups are actually building prototypes of what the students are designing. And the manufacturers are saying, "This is like the highlight of my year! We are going to continue to be engaged in these programs." They're seeing the excitement from the young people as these designs come to life. You're not only building the potential future workforce, but you're also helping to retain your current workforce.

Doran: When people have positive things to say about where they work, they're saying it to their friends who may need jobs. This grows into a community of people you want to go to work with and see every day.

How are today's grade school, high school and college students better prepared for the data driven analytics approach to manufacturing and business today?

Ward: As someone who sits on the Industry Advisory Council for the Accreditation Board for Engineering and Technology, and experience with SME, this is a concern in undergraduate education especially.

What I see are some wonderful things though, that are starting and I can speak to programs that SME does. We have a program called SME PRIME(Partnership Response in Manufacturing Education) where we work with the school and the manufacturers to bring career and technical education in manufacturing and engineering with a relatively 'low lift' for the school.

As industry is evolving, we're evolving the curriculum, aligning that curriculum to state standards, but also incorporating things like "How do you use Excel to really analyze data?"

If you're a CNC or a machining program, you're getting data off that piece of equipment.

How are you taking it out and doing some analytics to understand what's happening so that as those students keep moving on, they can then kind of bridge back to that, learning some of the new things they might have to do in the workforce.

Those are just examples, but it's really about that integrated education that needs to happen and that interdisciplinary education that needs to start occurring more frequently.

Schrauben: Speaking as a trained educator, former high school teacher, if I hadn't sought out those opportunities to see what I was being asked to teach or how it was being applied in the real world, I wouldn't have had those examples. I would have only known textbook math. I would have only known textbook physics. We are designing opportunities for educators to see what industry is doing. There are some exciting problems that the world is trying to solve.

We're trying to head in that direction. Students coming out of college might be ready, but not out of K-12. We're literally at the point of trying to help schools understand that we should

Kris Ward

Kika Young

Mary Ellen Doran

Megan Schrauben

be teaching computer science. We should be having conversations that everything they're being asked to teach is important for a well-rounded education, and you shouldn't just be cutting the arts program because you're trying to jam something else in. Those integrated, real-world examples help us to be much more effective and efficient in our education system.

Doran: My son had a fantastic robotics program in his grade school that was integrated where they taught the instructors how to use them first. There were kids leaving 5th grade knowing how to code in Python and using it in art and science class. I wish to see more of that. He was in a public school; it was a trial run and then the program just died and it didn't continue. We need more of those types of programs to exist and we need to build on them.

What incentive programs and recruitment tools are available specifically for gear manufacturers today?

Ward: I can't speak to gear manufacturing specifically because what gear manufacturers are facing is what every manufacturer is facing. There's a lot of funding out there. I'll talk about the new 'incumbent workforce' or 'net new to industry workforce' because even though we're talking about pipelines of talent and building that K-12 system, there are so many hidden populations and so many so many underserved, underrepresented groups that if a manufacturer is willing to take that risk to address things in their culture, there is so much funding out there to help you do just that.

Whether it's federal dollars, state dollars, you have the Manufacturing Extension partnership system that can help navigate that. You have academic economic development agencies that can help navigate some of that. The resources are out there. Sometimes manufacturers don't know where to look, and doing a better job at highlighting those resources is absolutely critical.

Young: Forest City Gear is in Illinois and there are several, both state and I think partially federally funded programs, available for workforce development and workforce training. Wherever you are, there is almost certainly a local partnership or extension office that you can contact to get those dollars. And sometimes those dollars can be a lot of dollars that you're eligible for reimbursement for training both on the job and outside training, bringing in trainers, etc.

Now, of course, anything that is connected to government dollars is not going to be an easy thing to do paperwork-wise, right? I mean, it's application after application, but those local extension offices will really help you navigate that and make it easier for you. And it truly is a good way to take advantage of some of that.

Doran: Additionally, we've seen a lot of our members that are going into universities and helping with project-based learning. There's not a lot of gear training in universities right now. They may touch gears for a quarter of one of their manufacturing classes over the course of their four- or six-year education, depending on whether they have internships.

We have companies that are now moving into a position to help with some of these bigger programs, whether it's building robots or building cars or building vehicles that are solving a certain problem. They work with the with the students hands on to be able to cut the gears and figure out the gears that are necessary for the transmissions and the drive lines for those vehicles. So, there are some opportunities that we're starting to see for gear manufacturing specifically.

What skills and capabilities do you believe will be most critical in manufacturing moving forward?

Ward: A lot. And that's not to sound funny about it, but we don't know. There are skills that are going to be needed five years from now that we haven't even thought about. Right now, the hot topic is AI machine learning, you know, data analytics, cybersecurity, connecting O.T. and I.T. But as those evolve and the talent base catches up, that next thing is going to become a really fast behind and really what we need is that philosophy of being lifelong learners.

You know, we're experimenting with, we actually got a DARPA award to look at AI applications in educational technology and taking people skills, marrying them up with job roles and job role requirements, seeing what jobs people might qualify for, but also helping them build out a learning pathway for potential future jobs that are coming down the pipe.

Young: It's a little corny, but my dad always used to say, "We're going to look for the three A's in an employee."

The first one is aptitude, right? They don't have to have the skill. I can teach them the skill, but do they have the capability of learning that skill? Do they have the aptitude needed to be able to learn?

The second is attitude. Do they want to learn? Are they nice? Are they going to be a good coworker? Are they going to fit our culture? We said it earlier. You spend more time with the people you work with than the people you live with. I don't want the guy working next to me to be a jerk all day. Nobody wants that.

And the third one seems so basic. But in today's age, it might be our biggest difficulty and it's attendance. Just come to work and don't ghost me.

Doran: There are so many new things coming at employees that to some degree they just need to be good at their job. We need gear manufacturers. We need gear designers. We need people who understand when the gear mesh happens, whether or not it's right. We can't rely on the technology itself. My biggest fear regarding technology is electricity. We're putting all of this effort into AI, which is a big electric suck. We're putting all this effort into cars which will be electric vehicles. So, are we thinking about generating enough electricity, clean electricity, to be able to 20 years from now support these things we're talking about?

Schrauben: I would just add the human element. As humans, we thrive on social connections and all our earlier answers are really around the culture of the community that you are establishing. The technologies are always going to be changing, so we really need to remember our human abilities and how we can work and adapt to meet these challenges.

Hear the complete discussion at: