

THE WORK SCIENCE CENTER



The Work Science Center Podcast

Episode 3 Bridging the Skills Gap

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Ben Perrodin: Welcome to the Work Science Center Podcast, brought to you by the Work Science Center of the Georgia Institute of Technology. I am your host, Ben Perrodin. You can find more about the Work Science Center at our website www.WorkScienceCenter.GATech.edu. In today's podcast I talk with Tim Lawrence, Executive Director of SkillsUSA. SkillsUSA is a national organization dedicated to preparing the modern workforce for careers in trade, technical, and skilled service occupations. Tim and I discuss the skills needed to succeed in the modern work environment and the often overlooked value in career and technical education.

Alright, Tim, thanks for joining me today. To start off could you tell me a bit about your background, how you became interested in skills education and what is SkillsUSA.

Tim Lawrence: Absolutely. Thanks so much for the opportunity, Ben, to be on today. My background started as a young man in southern West Virginia. I grew up in the coal fields, my parents still live there on a little farm. I was interested in the manufacturing industry, the manufacturing pathway. My dad had been a craftsperson working on the railroad and I was interested in the work he did. I was a high school student who came through a small school system in southern West Virginia, and really started struggling when I hit algebra 1 in high school. I was a straight A student through elementary school and junior high. When I hit algebra I sort of hit the wall as a kid. I struggled for the first time in my life as a young man, academically. But, I enrolled in a welding program in Mercer County, West Virginia, in a technical school there.

When I moved into that technical pathway, the light came on for me academically. All of a sudden, I could see the application, the real world application, of academics. I don't know if I was, like many student today, bored with the concept of algebra and advanced math, but it was something that was a challenge for me. When I got my hands on welding fabrication and design and putting things together, that made sense to me as a young man in the real world. I knew that application would be useful, could be used in future employment. My academic scores started to increase, and suddenly I became relevant again in high school, to myself, at least. It made a huge difference for me. I moved through that pathway in the welding program. I went into the manufacturing industry, continued my education, and eventually wanted to give back the way that career tech. teachers had given to me, and I became a career technical education teacher, myself, for ten years.

So, my pathway started as a young man in a technical course that made a big difference in my life, and frankly, the same thing happens today. Our instructors in sci-tech education are special people. This instructor was probably other than my parents and my grandparents, the most influential mentor in my life, and I wanted to give back the way that teacher had given to me. So, I became a technical education teacher, eventually from that, nine years of my life, I moved into an administrative position in the Virginia Department of Education and was managing the SkillsUSA program there. Then, in 1996 I came up to work for the national SkillsUSA Organization as the Director of Business Partnerships, and in 2001 became the CEO.

So, from that pathway of starting in a technical program that really changed the outlook that I had on my life, as far as setting goals in academic education, college, career, and even my own



personal life. I moved through that circle as a student who came full circle inside the organization. And, by the way, during that time in that technical program, I was introduced to the organization that I now manage, and I was actually a welding competitor in the state championships back during my high school days. So, it has been a journey, an incredible journey, of a young man who started in a technical pathway and then came full circle through the organization that changed my life

BP: So you mentioned a couple of times in there, career and technical education. I am wondering if you could explain a little bit, what is that? And, how does the educational experience and the opportunities thereafter differ from what we might consider a traditional university education?

TL: Absolutely, Ben. Career technical education, the term was once called vocational education in this country, but it has changed so much. Career technical education is really built around 60 career clusters that represent every occupation that exists in our country and globally. There are 12.5 million high school and college students enrolled in CTE across the country. Our concentrators that are really moving through the CTE programs, our graduation rate at the high school level is in the 90% range. In SkillsUSA, the organization that I manage now, our graduation rate for high school is 98%, and I do believe it is because of that real world connection that I spoke of previously. That real world application is something that draws interest, draws engagement, and really connects students to something tangible that they can see a pathway to a future in a real-world career.

But, CTE is something that if you look at those 60 clusters, everything from finance to administration, government administration, to manufacturing, healthcare, these 60 clusters cover all occupations. CTE does touch each and every one of those clusters. So, within each of those clusters there are career pathways, and knowledge and skills states that are aligned with the technical core that really is built upon the needs of business and industry, the needs of our economy. So, CTE is not like yesterday's vocational education, it is really aligned with 21st century skills, it connects students not only to technical pathways, it is a great college pathway. A large percentage of our career tech students do go on and pursue higher education. Not only pursue higher education, but complete higher education. Because again, they have that career pathway in mind that is tied to something that is not just a major that may change several times during their college career, but, it is tied to a career pathway. Whether it is healthcare, or business, or manufacturing, they have a goal in mind at the end. So, our high school graduation rate, and our college graduation rate is extremely high and I believe it is because of that connection to the pathway that CTE provides for them.

BP: Great. And you mention how CTE is responsive to the needs of industry, and I think that is a great segue to a concept that I think we have been hearing more about lately, which is the skills gap in the American workforce. Could you explain a little bit what that idea means, that there is a skills gap in the modern workforce?

TL: Absolutely, the skills gap, there is some misconception about the skills gap. The skills gap is really the mismatch between the jobs that are available and the skills that are necessary to fill those jobs and for people to be successful in those jobs. The gap in our country continues to



widen. According to the Bureau of Labor Statistics, by the year 2030 the gap is really going to be extreme. In fact, employers are already seeing some challenges because of the gap that exists today. There is also a gap in the workforce available, strictly in demographics. Every day in this country, 10,000+ people turn 65, which was once considered retirement age. I'm not sure it is anymore. That gap of people leaving the workforce and the pipeline of young people coming into the workforce, particularly the technical workforce, continues to widen.

But, the real gap is between the skills that people possess and the skills that industry needs to fill the jobs that will continue to move our economy forward. In fact, there is an organization called The ManpowerGroup. And, The ManpowerGroup, each year, does a talent shortage survey. We hear it constantly in our organization, particularly from our business partners that we work with on a daily basis. In fact, we have a couple of business partners in the building today that we are meeting with. But, employers around the world, and there is a survey that Manpower has done, 37,000 employers in 42 countries, 36% of those employers are having difficulty filling jobs. And, that is the highest report since 2007. 54% of those 37,000 employers are experiencing a talent shortage that they believe is having a higher meaning impact on their ability to meet the customer needs. They cannot meet client needs, because the work is there, the contracts are in place, but they do not have the talent to really get the work done.

The gap really is surprising as far as the jobs that are the toughest to fill. Again, according to Manpower, and this has been going on now for 10 years straight, the toughest jobs to fill worldwide, number 1: skilled trade workers, number 2: engineers, number 3: technicians, and the list goes on. Those three: skilled trade workers, like welders and machinists, plumbers, carpenters, construction, manufacturing and so forth, engineers and technicians have been in the top three consistently over the past 10 years. So, those are the jobs toughest to fill.

The other thing we like to talk about at SkillsUSA, not necessarily "like" to talk about but we do talk about it is the other skills gap. And, that gap is around what some people call soft skills, or professional skills, now in our federal discussions, 21st century skills. When you look at what employers are saying to us, one of their biggest challenges is the lack in today's rising workforce, of basic employability skills. Things like time management, teamwork, work ethic, integrity, the problem solving and critical thinking skills. So, where our organization, and we will talk about that, I know, a little later, SkillsUSA our real sweet spot, our core is around those softer skills. Nothing soft about them. They are hard to teach. They are hard to measure. But that is another big issue facing today's business market, is that lack of basic employability skills. In fact, when we ask employers their number one characteristic for hiring, it is not recommendations from previous employers, it is not previous work experience, it is not academic performance or grades, it is applicant attitudes and applicant communication skills, those skills that make people successful in working with others and really being part of a team that can be a high performing team inside of a business. Long answer to a short question.

BP: Well, I definitely want to return to those employability skills and learn a bit more about those, but before we leave the more narrow idea of the skills gap, why do you think we are seeing such a mismatch between the qualifications of today's workforce and the needs of the



labor market, particularly in those industries that you mentioned that are seeing the biggest impact?

TL: It is a tough question, Ben. The mismatch is happening simply because the training, people are not entering that training pipeline. There is still a misconception, there is still an image problem, inside what we call career and technical education. Although, if you walk into a local school, I'm in Loudon County Virginia, just across the river from Frederick, Maryland, if you walk into their pre-engineering program at the Frederick Technology Center, or into their graphic arts program at Monroe Tech Center, here in Leesburg, you will see something totally different if you are a parent than what you would have seen during your high school years inside career technical education.

So, I think there is this misconception that these jobs are dark, dirty, and dangerous and that yesterday's factory floor, and yesterday's manufacturing facility was a place that you don't want to steer your child toward. But, that is a misconception, it is a myth. Today's production facilities, and today's manufacturing facilities are state-of-the-art, lots of clean lab atmosphere. Even our schools where we do this training now: high school, and technical, and community colleges, are so much more advanced than they were before.

So, I think the problem starts maybe with parents not understanding the opportunities that exist inside career and technical education, the opportunities that exist with those career pathways and those eventual jobs that are so in need today, the skills that are needed for those jobs. The one I mentioned, skilled trade workers, we work with a lot of manufacturers, a lot of commercial and industrial construction companies, there is a tremendous need not only nationwide, but worldwide for welders. Most parents would not think of their son or daughter going into the welding industry, or the manufacturing industry, but there is not only opportunity, there are big wages and big benefits for a person who wants to work in that industry. And that is not only that industry, it is across the board in what we would call the trades or industrial sector.

BP: OK, and I wonder what you would think because something we are seeing a lot lately is students coming out of universities with big student loans and not necessarily a great track record of being able to pay them off quickly. So, this idea of taking a career and technical education pathway that is more responsive to the needs of the labor market, is that something that you think can help people get a better head start in their career in terms of being in a more stable financial position more quickly?

TL: Absolutely, and today's career technical education is demand driven. It is driven by the demands of local business and industry and this idea of college debt becoming so excessive in our country now, surpassing credit card debt for the first time, I think a few months ago. The stars are sort of aligning for career technical education because an industry recognized credential is very valuable in today's market place. A college degree is also valuable. But, we see so many college graduates who are wandering for a decade in many cases, with a degree that really does not lead directly to that job that their major may have prepared them for. And, young people are finding, and parents are finding, that an industry-recognized credential, whether it is an IT credential, a manufacturing credential from the American Welding Society or the National



Institute for Metalworking Skills, or an automotive and transportation ASE, a collision, those kinds of credential are very valuable. In fact, of our 400,000 approximate students who come through this program every year, 31% of our students go directly to work. They may go back and pursue higher education, but go directly to work because they have the skills and credentials to earn a good living right out of high school, or right out of a 2-year technical college or community college, with an associates degree or even without the associates degree, with an industry credential that has value in the workplace.

So, college debt is something that is changing the equation, you might say, particularly with parents who are looking for alternatives. And, I don't like the word alternative because we do not think that career technical education is an alternative education. It is a part of main-stream education, such that 12.5 million students annually are taking some kind of CTE course, whether it is in graphic arts, or IT, or manufacturing, or construction, or healthcare. It covers all occupations, and all pathways into the workplace.

BP: Great, so you say the stars are aligning for people to really take notice of the value of career and technical education, and SkillsUSA is an organization that is equipped to help them pursue that path. So, you mentioned that you all have 400,000 members or so, is that right?

TL: This year, 395,488, but who is counting?

BP: So, among your students, what is the make-up? Is it typically young people looking to enter the workforce right out of high school? Or, is it more people who are looking for career transitions after having been in the workforce for a while?

TL: Yeah, it is a really diverse mix. We are serving students, we opened up our program to middle school three years ago. We have a few thousand middle school members. Predominantly, our members are high school students who are in a technical pathway, preparing for a technical career. And then, we have the primarily two-year colleges, that market of students. The diversity in our organization, we truly look like America when you look at our membership, of annually around 400,000, almost 13 million that have come through the program since 1965 when we were founded. And, I am so proud that I was one of those students and that my life was changed by this organization.

But, to give you an example, SkillsUSA, we have an organizational framework that really we want every student to prepare for that employability skills piece we talked about to be career ready, to gain the personal skills like work ethic and integrity, the workplace skills like teamwork and communication, and then the technical skills grounded in academics that they will need to be successful in the workplace.

We also run the largest skills competition in the world. We had a delegation here from a small university in China with 180,000 students, was visiting yesterday, and we were discussing the difference between career technical education in the United States and career technical education programs in China, we both have a common connection with 76 countries around the world with an organization called World Skills. We will be sending a team of US students to compete with those 76 countries. Sending them to Abu Dhabi, of all places, in October.



But, what leads to that world competition, are local, regional, state, and our big national competition that we just finished in June in Louisville, Kentucky. We had 6,300 students there competing in everything from practical nursing, to culinary arts, to welding, to carpentry. And, of those students, mentioning diversity of age, people coming back for retraining, the youngest competitor in our program this year, was 13, a middle school student from Hawaii who was competing in a pre-engineering design challenge. Our oldest competitor in the national competition this year, was 73 years old, a lady from Arizona, who was in a welding pathway. And, that is the diversity, that piece you mentioned about people coming back to retrain.

Our students are in a wide range of career pathways but also in a very diverse range of age. And we see that community college, that two-year college population, the average age being in the late twenties, near thirty, because people are circling back after that decade of wandering, what I call wandering in the wilderness. Coming back to reestablish themselves in a technical pathway that they either really love to do, they want to get that education, that skill training, to make sure that they are doing something they are passionate about. Or, because they have lost their job and they just need to retrain to support their family and their community. So, that retraining piece is huge. That technical college, two year college piece, becomes more and more relevant to the needs of the economy, the needs of the workplace, as people are coming back and getting that training.

BP: Thanks, Tim. I am conscious of the time, here, do we have time for one more substantive question before I let you go?

TL: Sure!

BP: So, one thing I think that has been in the news lately is the decline of whole sectors of the economy or the labor market, I am thinking maybe of transportation with the coming of driverless cars, or the manufacturing industry. So, this seems like an issue that is going to require maybe large sectors of the workforce to retrain for different types of careers. Is SkillsUSA targeting some of those areas that seem like they are ripe for big transitions in the future?

TL: Absolutely. And what makes the magic of SkillsUSA happen is our connection to industry. We have over 600 business partners. Every industry you can imagine in those clusters we talked about earlier are involved with us. This is something that most people are not aware of, this competition we hold every year, really drives behavior in our training programs and our schools because, for example, let's use automotive. We know driverless cars are coming. Our national automotive competition is managed by General Motors and Mercedes and all of the manufacturers and the after-market companies as well. Our national HVAC competition is managed by Carrier Corporation, Trane, and Lennox and the Refrigeration Service Engineers Society. 31 companies sit on that national committee to write the standards for the skills and knowledge that students should possess to be successful in that industry.

So, for example, as we speak today, if you have a car accident, there is so much new technology happening in repair. There is plastic welding now, versus just metal. There is all kind of composite materials that have to be repaired. That technology and repair skills have to be there. In automotive, traditionally in automotive competition, it would involve brakes and steering and



mechanics, but suddenly we are introducing hybrid technology into that competition. When we introduce a technology that industry leads into a national competition, that drives behavior back to the schools and colleges that do that training., because they see that industry is leading that technology, and that industry is demanding that technology, and if they are going to be successful, they need to be teaching that technology.

So, what we do in SkillsUSA really drives a lot of behavior in our training programs and schools. As jobs are changing. Driverless cars are coming. If you think about the robotics lines in manufacturing. We hear that technology is taking jobs away. And there are examples of that. A battery factory in Ohio who had 300 employees and suddenly they have moved to automate that process, and they are down to less than 100 now and producing more than ever before. But, what people do not realize is to maintain that robotics line, to maintain that automated equipment, you need highly skilled technicians to keep that line moving. Same way with driverless cars. Someone has to troubleshoot. Someone has to repair. Someone has to maintain that automobile even when it becomes driverless. So, the need for technicians is not going to go away, it is actually going to increase in demand. The skills and technology and the knowledge that that technician is going to have in the future. We feel good about the future, even though lots of automation is coming. The autonomous car is one good example. But remember, that car may drive itself, but that technology, whether it is the drive train, the engine, the computer system on that car, still has to have a human being behind it to make it work.

BP: So, a lot of talk, but we are not ready to get rid of human workers just yet. That is good news.

TL: It will be a long time before the American public gives up driving their cars. It won't be in my life time or in yours, I think it will be a while down the road before we see people lose that love for driving.

BP: Well, we will wait and see. Tim, this has been a really interesting conversation, I want to give you the opportunity to share any closing thoughts. Anything we have missed? Or something we touched on that you would like to circle back?

TL: Sure, for anyone who is listening, if you are interested in learning more about career technical education, there is a website CareerTech.org. And, there is a campaign now called Skills Build America, and you can learn more about CTE there. I encourage you to look at our website, SkillsUSA.org, to learn about the things that we are doing to help students gain the framework skills to be successful in the future. There is a lot of data about the skills gap. Just Google skills gap and you will find more than you want to know. But, I do encourage you to take a look at SkillsUSA as a way, if a parent is listening and has a child who is thinking about a career path of a technical nature of any kind take a look at SkillsUSA we can help guide and direct and connect those young people, or older people, no matter what age the student is, to a really successful future. So, CareerTech.Org and SkillsUSA.org and that will close me out.

BP: Alright, Tim Lawrence, thank you for your time.

TL: Thank you so much. Take care.

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