

Transcript for Session 6: The Future of Work, Trends, and Careers in Technical Education

Mary: OK, everybody. Welcome back to our final session of the symposium. The final presentation is entitled the future of work, trends, and careers in technical education. I'd like to introduce Kevin Fleming, VP of strategic planning and development at Norco College and author of (Re)Defining the Goal. We will have Q&A after the fact. Please join me in welcoming Dr. Kevin Fleming.

Dr. Fleming: thank you so much. I want to say it's such a pleasure to be here. 11 years ago, I partnered with a small, intelligent, visionary team and was able to write a grant to the National Science Foundation and found the center, and it has been a pleasure to watch it grow and evolve over the last decade plus. Some of the smartest things I ever did were to recruit Steve Harrington to the team and to hire George, Colleen, and a lot of the voices you have heard today. I want to dive in with the topic they gave me, the future of work, trends, and careers in technical education. I want to start off talking about work in career trends. I'm going to start close to the topic we are talking about today, supply chain automation technicians, and then back up. I want to take some steps back on what's really happening with a macro lens in this field. E-commerce is booming and it continues to have a trendline that preceded the pandemic, but then spiked in the last year. E-commerce is the fastest-growing segment of the retail sector, and it has a lot of implications for this field for the employers and for our students. Last year alone, we saw it's like as a percentage of retail at 45%. That was only in Q2. We will see more spikes in the fall data. Year-over-year change, even looking to COVID, e-commerce was dramatically expanding. The sector and influence and the need for more automated warehouse facilities and the technicians therein -- when you look at just the square-foot demand -- I want to thank Steve for these slides. It's 175 million square feet needed annually. Looking at the space utilization needs, people get it right away. They understand the connection that's happening between our habits, our Amazon Prime Day memberships, and the need for this program to not only be established, but expanded. Taking a step further, away from automation, but about technology and fusion more generally, a recent study by Oxford University found almost half of all jobs are likely to be eliminated in the next couple decades by technology. More recently, the University of Redlands put up a study based on Bureau of Labor Statistics finding that 56% of current jobs now 2036 in the United States can

be automatable. A lot of people see these types of studies and they jump to, wait a minute, the sky is falling, and they ask, in which jobs will automation replace humans. That is such a well intended, but false question to ask. Whenever I get asked that as a proponent of this space and as an educator, currently a vice president at a community college, in the classroom part-time, used to be full-time, by trying to address this space -- here is the parable I tell. It's a familiar one, many of you are familiar with it and have heard of it. It's the parable of ATM adoption. When we look back in the 1970's and 1980's, people said the same thing, the sky is falling, we are going to eliminate all of the tellers in the banking industry. We can see from the data what happened. In 1985, 60,000 ATM's and 485,000 bank tellers. Fast forward to 2002, the number of ATM's group -- grew to 352,000. The bank tellers also grew. The financial advisors section also grew. Fast forward to 2017, an exponential growth in the financial advisor segment of the financial industry. If you look in red, the net growth of employees continued to accelerate and grow. The sector did not fall upon itself. It wasn't a house of cards. The same is to be true for the e-commerce effect and automated warehousing effect on supply chain technicians and AI and automation in general. It's not going to replace humans, but it's going to shift the need and the demand for the human beings and the skills that we need. I found this analogy to be imperative to me as I explained to others in my community, even some naysayers, the laggards about technology advancement, about why this isn't going to hurt or crushed jobs, but elevate it. When you walk into a bank, working exclusively with tellers, to now, where they have these comfortable open spaces and there is financial planning and interest and mortgage loans and other dialogues going on about investment, the same is true for our space. It helps to think about a trend that is happening and explaining it to those in your environment. I like to take a step back and look at the nature of work itself, which used to be these three ribbons that went across the screen. The world of work used to be education, then career, then you retired. It used to be that education was finite and fixed. He would be after your two or four more -- You would be done after your two or four degree. You would eventually retire, get a pension. The life expectancy was only at 67. You would live for one to five years and then die. That was the system. That was the nature of work as it was then. Instead of thinking about it as education, career, retirement. The new paradigm is learning, leveraging, and longevity. I'm going to credit Heather McCowan for the slide, she talks about in her book. Learning is going to be throughout our career. That's why I love what has been done with the CTSCA, stackable certificates that individuals can learn and engage on the worksite,

leverage their employment to accelerate their learning, and they are constantly leveraging and engaging. Classroom, online, personal, facilitated instruction with work-based learning experience, paid or unpaid. In this new nature of work, it's about learning agility and adaptability. The longer life expectancy, we expect workers to remain engaged, although in different ways. The learning and leveraging band is continuing throughout our entire lifespan. It's no longer fixed periods of discrete time that's linear in nature. Subsequently, the talent shifts are evolving. We've gone through a number of eras --- eras. Our mental models and educational models are very much fixed on the information era. We are starting to transition into what's being called the augmented era. It's no longer just about acquired knowledge and skills. It's about the creativity, agility, and adaptability of those skills, because of the constant churning within employers and fields. I'm observing a trend, that we are shifting from that paradigm of driving productivity of our workers in the information age to shift into inspiring human potential. That interplay between the world of work and the world of learning continued to be juxtaposed. Now, I do believe there's a lot of trends happening in the world of working career to which we need to respond to. I'm going to break an educator's rule and show a couple slides that have way too many words. The slides will be shared. I wanted you to have the full reference. There's a trend in education happening for the first time in about 1.5 generations, where parents are starting to not want their kids to go to a four-year college -- four-year college. They see the under employability, the student debt -- Versus the actual employability of technical and industry skills that is provided in programs such as this. I will read the highlighted section. They found that 46% of parents said they would prefer not to send their children to a four-year college right after high school, even if there were no obstacles, financial or otherwise. A slim majority of parents, 50.4%, still prefer that four-year college option directly after high school graduation. There is another national survey of teens, 52% believe they can succeed in a career with post secondary education other than a four-year degree, and one quarter of high schoolers say they are more likely to attend a career and technical education school due to the pandemic. It's no doubt that the last 15 months has changed the way the youth is inking about the world of work and leveraging collagen postsecondary options after 12th grade. I did not organize my slides or have a brief meeting with Charles Henkel, but he said the same thing this morning about targeting the launch initiative and target. Looking for the trend I see, instead of going to college to get a job, that's traditional mindframe, students will increasingly be going to a job to

get a college degree. We are going to see this trend where employers are going to say hey, yes, we offer a salary and medical and dental and a 401(k) contribution, and college tuition. That will be more ubiquitous as part of this philosophy of job first, college included. That will interplay with the work-based learning approach and the desire to connect education and employer s with more intentionality. 74% of all parents of K-12 students would consider a route where their child would be hired directly out of high school by an employer that offers a college degree while working. Sometimes we are recording students -- recruiting students to our course, to our program. What we should be doing is what Charles Henkel and Phil Jones talked about this morning, we should be recruiting them into an entry-level job and inbreeding that with the ability -- embraiding that with the ability to go on and get education. I think this will be a broader trend in the next two to 10 years that will require more stronger partnerships, like what we are hearing about today. In the past, we learned in order to work. The trend I foreshadow in the future is that we will work in order to continuously learn. It's a mind shift, especially for our parents and students to realize that school is not just something you do, you check a box and it gets done. College is not this fixed thing. I just read in Forbes, the gentleman I quoted in the previous slide, he put out a study this last week that showed that half of everything an undergraduate learns thier freshman year is outd ated by their senior year. Don't misperceive me, formal education is still an imperative. We need to teach students how to read and write and apply math and all of these things, but the research bears that education is insufficient when it is on -- unapplied or disconnected. I know many of us are on a webinar because we know this type of education counts, but adaptable skills count more. That's why getting it in a bunch of skills and modalities is so important to increase access and success for our students to get out of the educational trajectory and into gainful employment as soon as possible. Let's talk about technical education trends more narrowly, as I know from yesterday's poll, 74% of you in the symposium come from this trend. Some of you are familiar with and S-curve, product and market lifecycle, where you have a startup, you enter rapid growth, that plateaus and most likely there is a decline. Multiple S curves when stacked together indicate these trends and waves of technological innovation. This is not just for cell phones it's not just for computers, technology or software, it's for our curriculum. We have an early adoption of the program, we have the growth, we have this innovation window where their technology starts to change and we need to start this new S-curve. I am so encouraged to hear the dialogue of the new things coming on board,

because with the trend I have observed and we feel and know is happening is that technology based curriculum must response to these S curves and keep writing the top of that wave with partners, because our curriculum has a lifespan, our lesson plans have a lifespan. I want to acknowledge -- I know you heard about this previously in the symposium, but I acknowledged and thank the team for putting out the book and making it available in multiple formats and refreshing it and updating it, even this year, and continuing to make it engaging. Especially in COVID, something that can be done asynchronously and on their own to continue to learn and refine their understanding of this field. Because of COVID and related to that iBook, I wanted to share some research I conducted late last summer on this relevance, talking about trends in technical education. The counties of Los Angeles and Orange County reached out to me last summer to help identify some research on how they can convert 12 of their, what they called hard to convert career education programs, and identify, how can they transfer them into a distance learning environment where in California, we had it completely shut down. There was zero hybrid for some time, and the question is, how do you do remote skill verification in this modality? I have a report, feel free to dive into it if you want more than this cursory overview, but it identifies technology solutions and opportunities for successful online conversion. We did an internal scan and surveyed 28 Los Angeles and Orange County community colleges. 57 faculty, CTE, and deans responded about what they had done in the spring and summer 2020 eating into the pandemic. We didn't external scan as well focused outside of California and completed 40 interviews across 13 states. I was asked how many different links and references were in there. There are 228 citations, references, and links so that it's a bunny trail of awesomeness, you can go into all the different vendors and platforms and tools that are already available for the space. Let me give you the takeaways, the elevator speech of all this work. Over 50 pages of research, but what are the bottom takeaways? Here they are. First, most in this country that are leading technical education programs are planning long-term for the new normal. Many leaderships and states are planning for pandemic 2.0. They believe another pandemic will occur if not this fall, but in the near future. This might not be a one and done situation, and we don't want to presume that that will be the case, but they are planning so all of our programs in the future can toggle. At any point in time, we have to be ready to go into a hybrid or completely online environment for part or all of a term. That's not just going to be a short-term solution or Band-Aid, that's going to be a trend I think we continue to see. As such, the second take away, the CT instructor role is shifting. We are

seeing opportunities to rev which -- leverage curriculum affordability, and having a curriculum that can be portable across state lines, across the district, across disciplines. Sharing course content through campus shells like mentioned earlier today, via blackboard or canvas or other management systems, taking modules and not reinventing the wheel. In California alone, we have 960 unified school districts, and there is an introduction to business class being taught at every single one of those, and we have 960 instructors reinventing the wheel every day. The National Center is doing so effectively, helping you run higher and -- jump higher and run faster. Thirdly, to adopt national certification curriculum with the national research as the CT SA is demonstrating, and if I can take you back 12 months ago, there were so many programs across the country that were forced -- I remember a culinary arts program in Idaho that the school closed down. The soup kitchens in the community became the laboratory for the culinary arts program out of necessity. Now, thankfully, a lot of instructors are maintaining that relationship to have relevant work-based learning, and the same as demonstrated this morning. We have to expand our cognitive thought process of our walls to include the employer. Previous gentlemen talking about space being the hardest constraint. You don't have to fit it all in one building. We get to partner with other employers, and our classroom can be where they are employed as well. The third is embedding simulations. The next trend is to really embed augmented reality and virtual reality within our CT programs. That's exponentially growing and proving to be very effective. In fact, my friends at ZSpace, they sent me the hardware and demo here, I have my VR glasses. They are so effective. I know there are some programs that we thought we could never do it through AR or VR. You cannot do welding completely virtually, right? Maybe. In North Dakota, they had different groups going on. Somewhere on the ground, somewhere online. The industry pass rates were the same. Some of the technology in that case, the electric virtual training modules, was so good that it was a short learning curve from practicing it in their bedroom to going on-site and burning a rod in person. I think you are going to see, I predict that in the next 10 years, every single CT program will have AR and VR embedded in it. Whether it is the space or virtual labs -- ZSpace or Virtual Labs or Mindshift, that will be the next S-curve for us to adopt this curriculum. With oculus rift goggles, we can increase access to the field, especially in places that maybe won't have a full training lab or employer in their community, but they can enter into this field. Lastly, a court take away is that there is no silver bullet to this. There's an opportunity at a core suite of tools and programs, what I call the CTE Swiss Army knife. I encourage faculty regionally

or across a discipline like this nationally to get together and identify the two to five tools, two to five training programs, two to five simulation toolkits, and then adopting that curriculum and the advancement of it forward so we are writing those S curves and adopting the Swiss Army knife for the field and the program. That's what I have seen the center do so effectively over the years, convene and provide those opportunities for us to leverage so that faculty is not reinventing the wheel every time. If that article is helpful to you, feel free to download that. It was written two months ago and techniques -- in "techniques magazine," if you are not already getting the magazine, I would encourage you to do so. For 80 bucks a year, it is worth the membership even out of pocket, as I pay for mine. I have come to see a trend in work, career, and in career technical education. Education is often organized unfortunately by versus that are focused -- by courses that are focused on graduation. But what if education was focused on learners fulfilling their potential? What feels-like supply chain automation, for the first time in a long time, it helps to put in clarity for our students and learners, their purpose, their profession, their education, and it is able to all be in line so that for the first time, they can put the pedagogy and their professional entertainment in the same pspace. If I were King of the world, work-based learning would be required for every high school graduate. Every high school graduate should get at least one industry certification before they graduate from high school to ensure true work-based learning and career readiness. And it would really be focusing on galvanizing the individual's potential for work, not just preparing them for one job and certainly not for focusing on commencement and pretending that it's a goal. Graduation is a milestone, but not the end destination. Being viably employed in a living wage, in a field that they contribute, they can provide for family and community, to continuously learn, grow, he adapt -- adapt, and evolve to the next stage of occupation for them and their company, that's what this is all about. I know many of you are doing that day in and day out, so I want to end with encouragement by saying thank you for those who are focused beyond graduation, beyond just the course, and helping your students emerge into this high-growth, high demand industry that is having not just a resurgence now because of COVID, but a bright future, as e-commerce is not going to slow down as we start to return to "the new normal." I know my rate of speech was fast. I had a lot of slides and content I wanted to get to in this short period of time that I was afforded, but we have a few short minutes for question. Kudos to all the industry partners that have been alongside the journey in helping to co-create, thank you, and for the opportunity of hundreds of supply chain

technicians nationally that are being plumped out -- pumped out every semester. Thank you for what you are doing on this call and what you will do in the next year or two as a result of this symposium and this convening. Thank you for the time, and with that, Mary, I will handed over to you and we will address any Q&A's. I was not watching the chat.

Mary: No problem. Thank you for that, Kevin, that was tremendously inspiring, on top of being data-driven, which are the two best things. We have a couple of questions that came in a separate channel. One of them is pertinent to what you were just saying. Beyond the technical skills, what else should today's learners be focusing on to aim them in their careers? what would you suggest for that?

Dr. Fleming: Great question. I think there are four skills all students need, regardless of who they are or where they are going. They all need academic skills, to be able to read, write, synthesize, apply, and teach someone else. They have to understand basic reading, writing, and applied math. Secondly, as human beings, our students are not getting from public education life skills. That's everything from proper nutrition to financial management and financial computer literacy, but also goalsetting into personal management -- goalsetting, interpersonal management, grit. Third is employability skills. How to get the job and how, more importantly, to keep the job, how to do the pivots in the career, how to gain mentorships and conduct informational interviews. All three of those skills, academic life skills and employability skills are not industry-specific, the fourth skill, technical skills, is the only one of those four that is really industry or application-specific that will continue to change or focus in. If I were King of the world and could rewrite the high school curriculum, it would focus on all of those, which has that underpinning of critical thinking and being a good citizen. I think we are missing the mark a little bit, and have gotten a little myopic in public education in America, K through 16, in the way we have identified courses that should be required instead of broadening that view a little bit. Good question.

Mary: I agree. I have done a lot of that type of exploration, and seriously, those are the skills that employers over and over, but they called the soft skills, which is a misnomer -- we missed the mark on that. Don't necessarily produce work ready graduates. Skilled, may be, but not necessarily work ready. I would agree with you. Another question came in -- what do you think will happen to the valuable college degree in the future? With all these different sources of learning, we have

seen more of an uptick on putting together your own learning path, what would you predict for that?

Dr. Fleming: This is a dicey question to answer as a college vice president, so I have to choose my words carefully, but I am concerned for our field in higher education because, as you see in every industry, not just in technical programs like this, but you see Google coming out and offering certifications, Kaiser hospitals coming out with their own certifications for the health care field. The only thing that is really holding back the water is this dam called accreditation. As soon these private players get accredited in the same way that the College is accredited, I think public education is in trouble. I think it's still very antiquated and we still have in Southern California, half of my colleges have sledge desks. Not much has changed except for our current technical education in classrooms, and I think we still look at education based off a fan Yuri Mack -- a factory manufactured date, and that determines the sequence and process of school, instead of looking at aptitudes and availabilities. There is no reason why high school shouldn't be based around competency-based education. Why is 12 years this fictitious number we hold onto? Don't get me started on the Carnegie unit and where that came from and why we should get rid of it, but I think industry credentials are going to eclipse the value of a degree in the next few years, and we are seeing it. A lot of articles now are coming out about liberal arts institutions embedding industry credentials into their baccalaureate degrees, acknowledging that that's what's going to give their students a degree of competitiveness, and I couldn't agree more. I believe braiding together a strong curriculum, strong general education core, which can be modified, of course, but with industry credentials and third-party verified industry credentials, that's how students are going to get a competitive advantage. And I advise my students locally, I tell them yes, your degree may be required, but it is insufficient. We have a small window of opportunity where in that innovation sphere, us in secondary education needs to adapt or we may find ourselves in dire straits due to low enrollment in years to come.

Mary: You look at your previous answer in this answer, and there is a map. There is definitely, you can overlay one over the other, but when you are talking about the skill set, I think that is something that colleges can offer, that more broad skill set. Yes, I think it's time to get on it and start driving that car before it gets driven for us, I suppose.

Dr. Fleming: That's right. And not pretending we are the answer to everything, right? We have to have enough humility and wisdom to acknowledge that student more than what they can get an hour three minute class -- in our three minute class, and that parents and community and internships and co-ops and mentorships have to be part of this equation to fulfill them as three-dimensional human beings. We need to reengage the community and the parents in the education of our youth. I think we have pretended that we have had a luxury to relegate that response ability to education for far too long. I am elated that in this sector and others, employers are coming to the table and are not just giving lip service, but are true embedded partners in the classroom with us, because that's what it's going to take.

Mary: I will ask one last question, even though we are a little over time. There's a question in the chat -- are there any models helping to map competency-based certifications with the core structures that exist?

Dr. Fleming: Yes, and California is nascent in that. We are starting that conversation. The American Council on education is really the gold standard for this. They have already mapped credentials from the military, military certifications all the way to industry credentials, and they have mapped those with higher education courses. NORCO colleges working -- college is working on a program for the state where if someone comes to us with experience, real life experience, military experience, they can get college credit for that. That's assuming college credit is somehow more valuable, but it is definitely the gold standard to look at. I think the take away is that we cannot in this space be so beholden to the Carnegie unit of 54 hours of a lecture equals three credits on a transcript, and we cannot ignore the deep value that our residents can get either on their own in entrepreneurial settings, starting their own business, or working for an employer and getting hands-on learning. We have to be more intentional about how we give that academic credit and verify the skills that are sought outside of our walls, and not be so -- I have to be careful here, Mary -- that educational elitism is alive and well, but we have to be humble enough and wise enough to recognize that there's a lot we can do, but there's a lot learners can game outside of our ivory tower walls as well.

Mary: When you make the locus of the whole conversation about student success and getting that pipeline functioning as well as we can, everything you are saying resonates so soundly. Thank you, Kevin, for that wonderful presentation and this lovely Q&A. At this point, let's welcome back the lovely Valerie Piper for some closing remarks.