



From the Director ...

Dear Friends and Colleagues,

Welcome to *Connections*, the newsletter of the National Career Pathways Network.

The conference in Louisville is just around the corner!

If you have not already registered, don't wait. The last day to preregister is September 21. Savings for TEAMS and FIRST-TIME attendees are still available but will also expire on September 21.



Thanks, as always, to our contributors. In addition to their excellent articles, we also include information about this year's winner and two honorable mention recipients of the NCPN Career Pathways Partnership Excellence Award. (See page 2 for more.) We are proud to announce that IMCA-CAT is our new sponsor. IMCA is an international company with a reputation for innovative social investments in technical education. A long-time partner of NCPN and its parent organization, CORD, IMCA has led numerous initiatives over the past decade aimed at transforming technical education through strategic business-education partnerships.

Thanks for all you do to promote success in career education and workforce development. *See you at the conference!*

Debbie Mills, Director, NCPN ♦

Statewide Articulation in Ohio

Jamilah Tucker, Director of Ohio's Career-Technical Transfer Initiatives (pictured), Senior Associate Director Anne Skuce, and Associate Director Nikki Wearnly

Ohio has one of the strongest systems of career-technical articulation and transfer in the country, but it doesn't come without hard work and systemic statewide commitment. Aided by a statute in the Ohio Revised Code, the Ohio Department



of Higher Education's (ODHE) Articulation and Transfer Network utilizes a five-step strategy to develop statewide articulation agreements. The premise is simple: Statewide faculty should be engaged in every step of the development, and students should not have to duplicate what they already know from their secondary career technical education. As they matriculate into the state's public institutions of higher education, students receive course-specific credit through statewide articulation for the courses they took in high school CTE that are aligned to the statewide agreements. This "faculty-led, student-focused" initiative has led to more than 80 formal statewide individual course-level articulation agreements for Ohio's secondary students, saving them time and money on their pathways to degrees.

Secondary students are only part of Ohio's strategies for improving certificate and degree attainment. The state's One Year Option focuses on adult students. Borrowing from the five-step strategy, statewide administrative and faculty teams have endorsed clock-hour programs coupled with approved industry credentials awarded in Ohio Technical Centers (public adult education) to apply as block credit toward technical associate degrees. In most cases, the award provides one year's worth of credit (or 30 hours) of the two years (60 hours) necessary for the technical associate degree.

But does it work? While it may be too soon to tell for the state's One Year Option (in the infancy of implementation), several institutional pilot studies indicate that secondary statewide career-technical articulation is showing promise. Students are cashing in on their guaranteed statewide articulated credit at the state's 36 two-year and four-year colleges. One study revealed that while second-semester GPA comparisons were not significantly higher for students receiving statewide articulated credit versus native students without the credit, articulation students were persisting at greater rates than native students, had lower levels of remediation, and retained Pell eligibility longer. ODHE hopes to repeat these studies in the future and is working on more sophisticated data collection and reporting procedures.

For more, contact Jamilah Tucker at jjones@highered.ohio.gov. ♦

NCPN 2018 Keynote Speakers

Work Ethic: The Must-Have Skills for the 21st-Century Workforce



Josh Davies
CEO, Center for Work Ethic Development

Toyota/FAME Career Pathway: Two Million!



Susan Elkington
President, Toyota Motor Mfg, Kentucky, Inc

Pathways and Prosperity: Student and Community Success



Bryan Albrecht
President, Gateway Technical College



TEAMS of FIVE or more can register for the NCPN conference for \$495 per person. **FIRST-TIME** attendees also receive a discount. For details and to register, visit ncpn.info.

NCPN Partnership Excellence Award 2018 Winner and Honorable Mention Recipients

The Career Pathways Partnership Excellence Award emphasizes the importance of career guidance and advising, professional development for educators and employers, and the employer role in providing work-based learning opportunities for students. The award is sponsored by IMCA, an international company with a reputation for innovative social investments in technical education. IMCA has led numerous initiatives over the past decade, all aimed at transforming technical education through the development of strategic business-education partnerships.



WINNER: Florida Pathways to Apprenticeship



Florida Pathways to Apprenticeship is a program of the Florida Masonry Apprentice and Education Foundation (FMAEF). FMAEF works closely with the Masonry Association of Florida (MAF) to establish industry

standards on curriculum and credentialing. Employers and other partners donate tools, equipment, and materials. FMAEF is also supported through the Florida Concrete Masonry Education Council (FCMEC).

FMAEF's network of employers speak with construction classes, participate in open houses and career fairs, and provide shadowing and internship opportunities. Employers participate in Skills USA competitions as mentors, contest chairs, and judges.

Prospective participants can enter the program at multiple levels. Through pre-apprenticeship training completed at the high school level, at-risk youth programs such as Youth Build and AMI Kids, or any of the eight Florida Department of Corrections programs, students who have completed NCCER (National Center for Construction Education and Research) knowledge and performance levels can articulate credit earned into apprenticeship programs. The program also provides a process for adults seeking to enroll and establish proof of past experience.

By providing continuing options for articulation from pre-apprentice training into full masonry apprenticeship programs, FMAEF has developed a pipeline of talent for participating contractors and companies feeling the strain of a limited skilled labor pool. The commitment to using nationally recognized curriculum with stackable credentials provides for a growth model where employers can continue to educate and develop leaders in their prospective fields.

HONORABLE MENTION: Reseda Charter High School Police Academy Magnet



The Reseda Charter High School Police Academy Magnet opened in 1998. With "Preparing to Serve" as its motto, this career pathway's mission is to prepare interested students for law enforcement careers, establish a bond between

juveniles and local police officers, and produce highly capable citizens who will graduate from high school, go on to college, and serve in their communities.

This nationally recognized program commits students to a rigorous course of study involving honors curriculum, career technical education electives, a college course, physical training, and community service. In addition to the CTE teacher, a Los Angeles police officer and Los Angeles Unified School District police officer are assigned full-time positions in the program.

Junior and senior cadets job shadow as interns at local police stations during winter, spring, and summer breaks. Cadets interview for intern positions and are assigned shifts and commanding officers. Interns provide customer service, work in the detective's office, and assist the watch commander with street camera observation. Cadets who speak languages other than English serve as translators.

Reseda Charter High School's Magnet was named a silver medal recipient by USA Today and a distinguished program by the Magnet Schools of America two years in a row.

HONORABLE MENTION: Port Houston Partners in Maritime Education



Port Houston Partners in Maritime Education (PHPME) is a high school through graduate school career pathway designed to help students acquire the education, skills, and credentials necessary to succeed in the maritime industry.

Port Houston launched the program in 2009 to address the local maritime industry's aging workforce. Six high schools in four school districts offer the pathway.

Participating students gain awareness of maritime careers, acquire STEM-based knowledge, use state-of-the-art simulation equipment, and earn industry-valued credentials and dual credits. Students tour industry worksites, attend maritime industry forums, participate in internships, and earn college scholarships.

The pathway introduces students to maritime logistics, transport and distribution; piloting and deck operations; maritime administration; marine engineering and naval architecture; security and technology; and U.S. Coast Guard, Customs, and Border Patrol.

The program has had over 1200 students participate, and in 2017–2018 there were 155 maritime high school graduates.

Port Houston collaborated with Texas Southern University (TSU) to develop a four-year degree in Maritime Transportation Management and Security and developed partnerships with Texas A&M Galveston and other postsecondary institutions that have maritime certificate and degree programs. ◆

Partnerships for the Future

Hope Cotner, President, Center for Occupational Research and Development

“From robots on the assembly line and in the operating room to the office that travels with you 24/7, the world of work is changing. We are at the cusp of a major transformation in work that is being driven by combinations of machine learning, artificial intelligence, the internet-of-things, and robotics.” This is how the National Science Foundation describes the technological evolution of the workplace in its 2016 report, *10 Big Ideas for Future NSF Investments*. The report identifies *the Future of Work at the Human Technology Frontier* as one of the ideas that will “push forward the frontiers of U.S. research and provide innovative approaches to solve some of the most pressing problems the world faces, as well as lead to discoveries not yet known.” The workplace transformation NSF describes is occurring right before our eyes. Advances in technology are changing industries at an unprecedented pace and demanding an expanding array of knowledge and skills. While these advances promise new enterprises, occupations, and opportunities for innovation, they are drastically altering the workplace as we know it.

What implications does this transformation have for those of us engaged in the work of preparing young people for their future careers? Will the pathways students choose in high school lead them to plentiful employment opportunities, or to jobs that are declining, or in a constant state of flux? The answer is likely “all of the above.”

The McKinsey Global Institute, in its report *What the Future of Work Will Mean for Jobs, Skills, and Wages*, forecasts the number and types of jobs that might be created through 2030, based on varying rates of technology adoption, and compares that to the jobs that could be lost to automation. The report asks five critical questions:

1. What impact will automation have on work?
2. What are possible scenarios for employment growth?
3. Will there be enough work in the future?
4. What will automation mean for skills and wages?
5. How do we manage the upcoming workforce transitions?

McKinsey notes that “in about 60 percent of occupations, at least one-third of the constituent activities could be automated, implying substantial workplace transformations and changes for all workers.” How many people could be affected by these changes? McKinsey estimates that “between 400 million and 800 million individuals could be displaced by automation and need to find new jobs by 2030 around the world.” (This estimate assumes that the rate of automation adoption falls in the midpoint to most rapid of possible scenarios.) Of those displaced, “75 million to 375 million may need to switch occupational categories and learn new skills.” For the U.S., that could mean up to one-third of our 2030 workforce would require reskilling or upskilling. McKinsey also notes that “if history is any guide, we could also expect that 8 to 9 percent of 2030 labor demand will be in new types of occupations that have not existed before.”

The biggest challenge we are likely to face as career-technical educators and workforce development professionals will be

ensuring that students have the skills and guidance necessary to navigate and succeed in these rapidly changing employment environments.

Are there any skill sets that will insulate our students from these changes? Unfortunately, no research—not even a crystal ball—could precisely predict what workplace realities students will face in the future. But we do know it’s not just technology advances transforming the nature of work. From data collected over a period of two decades, *Harvard Business Review* reported in 2016 that “the time spent by managers and employees in collaborative activities has ballooned by more than 50 percent. As business becomes increasingly global and cross-functional, silos are breaking down, connectivity is increasing, and teamwork is seen as a key to organizational success” (Cross, Rebele, & Grant, 2016). A 2017 *Business News Daily* report on employability skills needed in the tech industry put collaboration skills at the top of the list, in addition to creative problem-solving, communication, and leadership. “Tech professionals not only need to be able to work well within their own teams, but also work well with other employees in the company that lack their understanding of technology” (Brathwaite, 2017).

These reports, along with scores of others, highlight the increasing urgency with which employers are calling for workers with skills that enable them to collaborate with teams, both in person and virtually, communicate effectively in a wide variety of media, problem-solve under tight deadlines, and adapt to ever-changing business variables. In many cases, we are preparing our students for workplaces, jobs, and even entire industries that don’t yet exist.

The world is moving too fast for us to blaze new trails alone. As educators, we don’t have all the tools or dollars necessary to create and maintain the education-to-careers pipeline ourselves. As technology adoption accelerates as never before, now is the time to strengthen our existing partnerships and create new ones across our stakeholder communities to ensure we’re doing everything we can to prepare our students for the Future of Work. But this future won’t look the same in every part of the country. In the most effective partnerships, organizations (both education and business) will learn from each other, find new ways to leverage each other’s resources and knowledge, and collaboratively discover workforce and economic development solutions that make sense for their communities.

The CTE community has a long history of partnering with business and industry to ensure its programs are relevant and responsive. But given the dizzying pace of change across all industry sectors, just how relevant and responsive could our current programs be? When was the last time business advisory committee members closely reviewed our program content or evaluated our labs? What industry credentials do our business partners truly value? What employability skills are most critical to their companies’ success? As the workplace landscape changes, our business partners will be some of our most essential resources for information and analysis.

See “Partnerships,” page 6.

Building a Regional Manufacturing Career Path System: Social Inclusion and Institutional Innovation

Erica Swinney Staley, Director of Operations, Manufacturing Renaissance



Manufacturing Renaissance (MR) is a Chicago-based nonprofit, nonpartisan organization working to build thriving, sustainable communities by connecting them to manufacturing through education, training, and local ownership. For the last ten years, MR (based at Austin College and Career Academy) has developed and operated the Manufacturing Connect (MC) program, serving youth from predominantly low-income communities on the west side of Chicago. The impetus for MC's creation was recognition of the need to respond to worsening conditions experienced over the last 40 years as a result of dramatic changes in manufacturing throughout the Chicagoland area. Although Chicago ultimately lost 4000 manufacturing companies and 200,000 jobs during that time, due to the increased use of automation technologies and the concurrent decline of vocational education, for the last 15 years we have found ourselves in a "skills gap" with an estimate of 20,000 (and counting) manufacturing jobs going unfilled.

MR's research over the years has observed the following:

- 1) Hundreds of manufacturers have struggled to fill good jobs.
- 2) An increasing proportion of manufacturing companies with aging owners risk closing solely because of lack of successors.
- 3) Young people living on the west and south sides of Chicago experience high unemployment and extreme poverty.
- 4) There has been no mechanism for enabling young people to gain awareness of opportunities in manufacturing.
- 5) There are excellent international models for building education and workforce development systems.

A systemic solution to Chicago's problems required essentially starting from scratch. In 2005, MR joined several other entities in founding the Chicagoland Manufacturing Renaissance Council (CMRC), a multi-stakeholder collaborative of representatives from manufacturing, local labor organizations, city government, educational institutions, and community-based organizations. CMRC's founders were committed to the idea that, through

support for the development of sustainable communities, the Chicagoland area can be a hub for advanced manufacturing. CMRC was unique in that it equated employer success with community success and held that true public/private partnerships require true public/private beneficiaries.

CMRC recently put forward twelve program and policy proposals deemed necessary for the envisioned system to become a reality. However, the first step toward making the vision a reality was to create a prototype for high-quality education programs, prioritizing youth from the communities most impacted by deindustrialization. The prototype would give youngsters and young adults opportunities to develop the interest, learn the skills, and gain the work experience necessary to access career-track employment with local manufacturers starting after high school. That prototype became what is now called Manufacturing Connect (MC).

The second step toward the realization of CMRC's vision was to scale up the prototype so that multiple schools across the region would have similar programs, thus enabling potentially thousands of young people to pursue manufacturing careers.

In the third step, economic development partnerships would engage the aging generation of manufacturing business owners as well as the new generation of minority and women entrepreneurs (especially those now-adults who went through MC programs). That engagement would help to assure aging owners that their legacies would continue and that they would receive fair market value for their investments, and it would give the next generation the opportunity to create wealth and provide jobs.

We are still in the early stages of our systemwide development. However, we are making progress. Since 2010, MC has worked with over 100 local manufacturers to provide 420 job shadow and internship experiences. MC participants have earned 421 industry-recognized credentials and more than 100 full-time job placements (of which 74 percent reached the 90-day retention milestone). On average, participants who have chosen jobs in manufacturing have experienced at least 11-months of retention on the job. As of 2017, MC expanded to a second-high school on the south side of Chicago and is about to start a soft-program launch at a third high school on the northwest side.

Over the last year, CMRC has begun the development phase of the Ownership Conversion Project, a venture that is designed to retain Chicago's manufacturing base by helping a new generation of entrepreneurs—women, African-American, Hispanic, and other minority-groups—acquire existing manufacturing companies.

We still have a long way to go, but even after thirteen years, the CMRC continues to provide thought-leadership while building political and grassroots support for expanding and deepening the policies necessary to make the envisioned system possible.

For more information, contact the author at estaley@mfgren.org or visit mfgren.org. ♦



Lessons Learned: How Removing Silos Has Led to Innovative Programming

Camille N. Reese, Vice President for Instruction; Amanda Rhea, Director of Educational Partnerships;
David Bullins, Director of Public Safety, Mitchell Community College

Mitchell Community College is one of 58 community colleges in the North Carolina Community College System. Mitchell CC offers a wide variety of both continuing education (non-credit) and curriculum (credit-bearing) programs. Like every other community college in our system, we have experienced declining enrollment for the past several years. This has challenged us to take a hard look at the way we serve our students and meet the workforce needs of business and industry and our community at large.

In 2016, Mitchell CC was selected as one of 12 cohort colleges to participate in the U.S. Dept. of Education Office of Career, Technical and Adult Education's Mapping Upward project, led by CORD. Guided by the technical assistance we received through the project, we assessed how we provide programming, award credit, and incorporate industry-recognized certifications in our programs. The main goal of the project was to explore strategies for converting non-credit certificate programs to credit-bearing stackable credentials leading to associate degrees. Through the project, we have been able to transform the way we value credit and non-credit at the college and have begun to recognize the impact that each has on students and careers.

One example of this new process can be seen in the college's emergency medical science (EMS) program. At Mitchell CC, EMS has been offered for many years as a non-credit program composed of two primary paths: EMT and paramedic. The EMT path is completed in one 16-week semester and consists of 200 hours (classroom, lab, and 24 hours of clinical experience). The paramedic path is completed in 14 weeks and consists of 1000 hours (460 classroom hours, 200 lab hours, 100 clinical hours, and 240 hours of field experiences). Students who complete those paths are eligible to sit for the NC EMT and paramedic exams and become credentialed. However, students who completed the program were not able to move forward in their careers because they had not earned academic degrees. Moreover, if they wanted to continue with their education and earn associate or bachelor's degrees, the credit earned through this program did not articulate. Since EMS providers now seek degreed paramedics to lead their organizations, this limited the graduates' career mobility.



A plan was put in place to develop a credit-bearing EMS program that would enable non-credit completers to be awarded credit for meeting specific outcomes and competencies that had

been built into the non-credit course. The college created a bridge program that would facilitate the articulation of the non-credit courses to curriculum credit. Through this process we have developed the following program options:

- Career and College Promise, a pathway designed for dual-enrolled high school students;
- Emergency Medical Science Bridging Option, for completers

of the non-credit credential; and

- A traditional two-year associate in applied science (AAS) degree in emergency medical science.



The Career and College Promise (CCP) pathway enables high school students to earn college credit. Participating students have both college transfer and CTE options. The EMS pathway allows high school seniors to enroll in an EMT course the college offers on the campus of a high school that is dedicated to CTE. Students who complete the course are eligible to become certified EMTs. The high school students also take medical terminology courses that can be articulated from the high school to the college. Students who complete all three courses earn academic certificates from the college. These courses are part of the EMS degree, allowing students to stack the credentials.

The EMS Bridging Option is designed to allow a certified, non-degreed paramedic to earn an AAS degree in EMS by completing course requirements identified outside of the paramedic subject area. This program gives the student an opportunity to enhance learning already achieved through non-credit certification courses for paramedics. Coursework includes medical terminology, general education courses, and anatomy and physiology. Currently, when graduates of the non-credit paramedic program enroll in the credit-bearing AAS emergency medical science degree, they receive 42 articulated credits and need fewer than 30 credits to complete the EMS Bridging Option.

The EMS curriculum provides the knowledge, skills, and attributes necessary to provide advanced medical care as paramedics for critical and emergent patients. Students gain complex knowledge, competency, and experience while employing evidence-based practice under medical oversight and serving as links between medical emergency scenes and the healthcare system.

The college has seen great success with this program. The curriculum of the EMS program was offered for the first time in fall 2017. That same semester, students who had already completed the non-credit program, who enrolled in the bridging option, and who completed the general education requirements for the AAS in EMS were awarded degrees. An additional five students have earned their associate degrees. Currently 16 CCP students have completed the pathway.

The Mapping Upward cohort colleges are now part of the CORD-led Advancing Credentials through Career Pathways project, funded by the ECOM Foundation. This experience has provided the college with additional opportunities for growth and collaboration. We are taking a closer look at other non-credit programs to determine how we can replicate this process in advanced manufacturing careers such as mechatronics, welding, and computer integrated machining, as well as health care and information technology.

For more, contact Camille Reese at creese@mitchellcc.edu. ♦

• “Partnerships,” continued from page 3 •

Three types of partnerships that can help prepare students for the Future of Work include:

- **Employer partnerships** with companies across sectors to collaborate on instruction and work-based learning opportunities, serve as mentors, and operate as business-industry leadership teams focused on building each community’s talent pipeline;
- **Organizational partnerships** among high school and college leaders to align programs, offer accelerated options with seamless transitions, and remove barriers to student success; and
- **Instructional partnerships** between academic and CTE faculty to build interdisciplinary connections, integrate real-world applications, and embed employability skills across the curriculum.

As with any major change, the Future of Work presents both opportunities and challenges. We can face the future with confidence, but only if we work together. Only by strengthening existing and creating new partnerships of committed individuals willing to embrace change can we bring to fruition the collaborative innovations that will assure our students a bright future, whatever it may hold.



For more, contact the author at hcotner@cord.org. ♦

National Career Pathways Network

2018

CONFERENCE

Career Pathways: Creating Connections, Building Futures

October 10–12 • Louisville, KY



RESKILLING FOR THE WORKPLACE OF THE FUTURE

In January 2018, the World Economic Forum, in collaboration with the Boston Consulting Group, released a report titled *Towards a Reskilling Revolution: A Future of Jobs for All*.

The report is based on the premise that, given rapid changes in the workplace that are already happening and will only accelerate in the future, workers must be systematic lifelong learners if they hope to maximize their employment potential. The situation impacts not only employees but employers and policymakers as well. “For companies, reskilling and upskilling strategies will be critical if they are to find the talent they need and to contribute to socially responsible approaches to the future of work,” the report notes. “For policymakers, reskilling and retraining the existing workforce are essential levers to fuel future economic growth, enhance societal resilience in the face of technological change and pave the way for future-ready education systems for the next generation of workers.”

The report does not paint a bleak picture. Rather, it invites optimism but stresses that most workers will have to make significant changes if they hope to be ready for the realities that await them. As the report states, “the majority of ‘good-fit’ job transition options—70%—will require the job mover to shift into a new, hitherto often unfamiliar cluster of roles, i.e. a new job family.”

“To even begin thinking about large-scale job transition planning and economy-wide reskilling, the role of individuals will be absolutely critical. Some reskilling will require time off

work, some will require gaining additional formal qualifications, perhaps after decades out of the classroom. These efforts will not be easy, and individuals will need to be adequately supported and incentivized and will need to be able to see the eventual benefits of continuous reskilling in the form of rewarding job transition pathways. . . . [W]hat will be required is nothing less than a societal mindset shift for people to become creative, curious, agile lifelong learners.”

The report introduces “a new approach to identifying reskilling and job transition opportunities, including those that might not be immediately apparent. Using big data analysis of online job postings, the methodology [used in the] report demonstrates the power of a data-driven approach to discover reskilling pathways and job transition opportunities.”

By offering specific recommendations, the report frames the debate on the future of work in practical terms.

Download the PDF at <https://www.weforum.org/reports/towards-a-reskilling-revolution>.

