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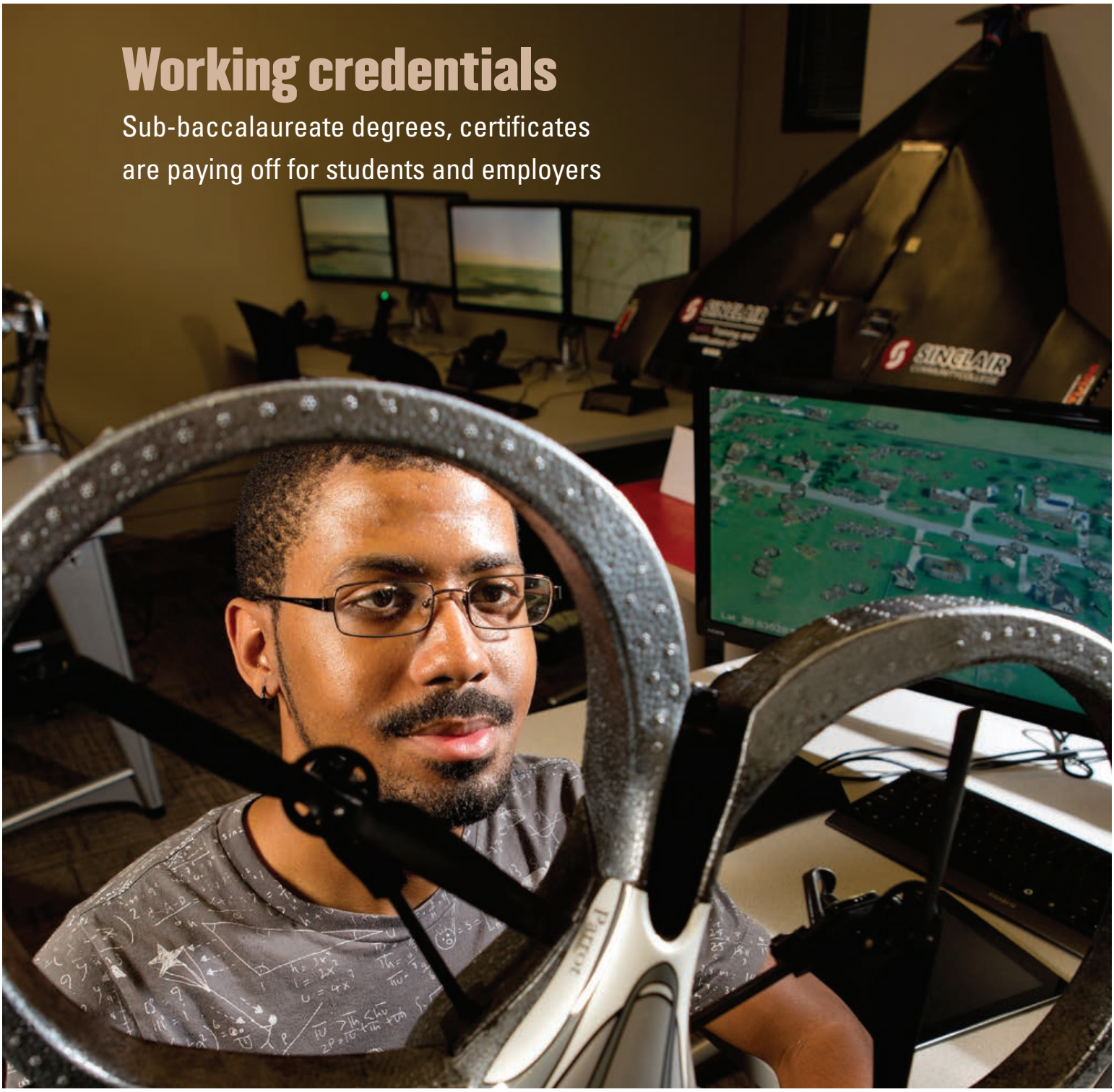

Working credentials

Sub-baccalaureate degrees, certificates are paying off for students and employers

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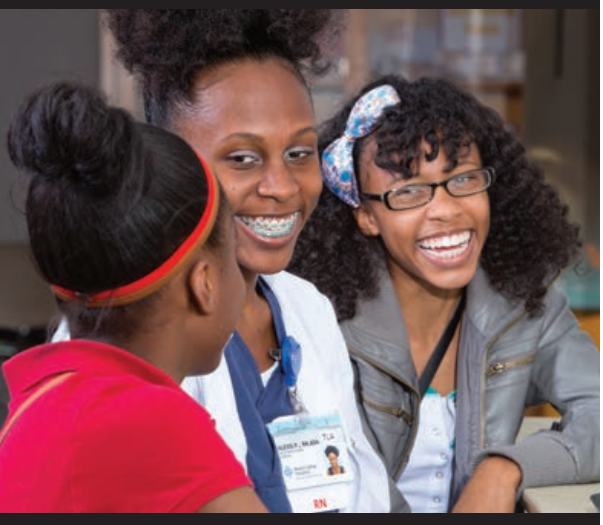

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On the cover: Trace Curry, a student at Sinclair Community College in Dayton, Ohio, is pursuing a certificate in unmanned aerial systems — a sub-baccalaureate credential that he says will open "a huge window of opportunity" for him in the aviation and aerospace field.

PRESIDENT'S MESSAGE

What comes to mind when you hear the word "college?" If you're like most Americans, the first image you might have is of ivy-covered buildings on a tree-lined campus — a place where bright, eager young people spend four years learning and growing and preparing for adult life.

It's a nice picture, at once hopeful and reassuring. The thing is, this image is largely inaccurate, and every day it becomes further removed from reality.

It belies the fact that less than 20 percent of today's college freshmen fit the traditional profile — that is, young people who graduate from high school and enroll immediately as full-time students at four-year residential institutions. It ignores millions of community college students, the ever-growing populations of adult students, displaced workers and part-time students. It overlooks the massive growth of online programs and institutions.

Finally, this nostalgic image of "college" makes no room for anything less than a four-year degree. That omission is a critical shortcoming. Economists and employers agree that sub-baccalaureate credentials — associate degrees and high-quality certificates — have genuine and growing value in today's economy. Researchers say that, in addition to providing immediate and tangible payoffs in the labor market, sub-baccalaureate credentials often serve as steppingstones for students to reach higher-level postsecondary degrees.

The facts are clear, then, that the value of "college" kicks in well before four years. And this issue of *Lumina Foundation Focus* makes those facts come alive — through the stories of several real people in a particular place: Dayton, Ohio.

By zeroing in on Dayton, a Midwestern city whose residents have suffered as industrial and auto-sector jobs have declined, noted higher education journalist John Pulley opens a window to a nationwide story. In Dayton, as in many cities, older workers are retooling their skills — and young people are preparing for their place in the new economy — by pursuing a new definition of "college." They're breaking out of the four-year box.

In this issue, you'll meet several students who speak eloquently about the value of sub-baccalaureate credentials, including:

- Todd Sollar, a laid-off GM assembly line worker who overcame his youthful disdain for education and earned an associate degree while in his mid-30s. That degree, in automation and control technology, prepared Sollar not just for his new job, but for a promising career in industrial robotics.
- Trace Curry, a young man with high-flying dreams of working in aerospace research. Curry is getting a jump on those dreams in a certificate program focused on unmanned aerial systems, the technology behind drone aircraft.
- Mariah Henderson, 19, who's about to enter an 11-month program that will qualify her as a licensed practical nurse. It's her first step in becoming an RN — a goal she's had since she was a young teen caring for her cancer-stricken father.

Along with the stories of these and many other students, you'll hear from several employers, educators and economic development officials in the Dayton area — all of whom recognize the enormous benefits of sub-baccalaureate education. There's also a wealth of information on our website, www.luminafoundation.org, where *Focus* offers many extra features, including a compelling photo essay of one student's experiences and a look at the role of for-profit colleges in sub-baccalaureate education.

We believe all of these stories — in these pages and on the Web — powerfully illustrate a new reality and offer a clearer image of what "college" really means in this country. In our view, it's an image that must be embraced if we are to overcome our lingering economic woes and set a course for lasting progress.

Jamie P. Merisotis
President and CEO
Lumina Foundation

College-level le

breaks out of the four-year box

By John Pulley

At a glance, Dayton-area residents Todd Sollar and Alexis Ponder appear to have little in common beyond their shared geography in southwestern Ohio.

Sollar is a 36-year-old white man, Ponder a 23-year-old woman of color. He barely graduated from high school in 1995. She had earned enough credits while in high school to graduate, in 2007, with a diploma *and* an associate degree in liberal arts and sciences.

Sollar says his teachers made it clear that he wasn't "college material" — which was fine by him. After high school he took a job with General Motors on the assembly line of GM's Truck and Bus plant in Moraine, just south of the city. Including overtime pay, he earned between $70,000 and $90,000 annually. It was a good gig while it lasted.

arning

At Gosiger Inc., former GM assembly line worker Todd Sollar now spends his days wiring and programming industrial robots — a job he prepared for by earning an associate degree in automation and control technology. "I wanted to retool myself to find a better job to support my family," Sollar says.

Ponder graduated from high school and enrolled at Xavier University in Cincinnati. Xavier awarded her a Bachelor of Science in Nursing (BSN) in 2011, and Miami Valley Hospital recruited her to work as a critical care nurse on its medical pulmonary unit. Ponder says she is thinking about one day enrolling in a doctoral program.

"I know that I want to go back to school," she says. "I just don't know what I want to study."

The education and career paths of Todd Sollar and Alexis Ponder are wildly dissimilar. Yet they intersect at a critical point: Both earned sub-baccalaureate degrees — credentials beyond the high school diploma, but below the traditional four-year college degree. Those credentials have had a huge impact on them both — on their careers, their financial security and their families. In fact, it's fair to say that attaining those credentials has altered the trajectories of their lives.

In the 1990s, Todd Sollar was the kind of student who easily met the low expectations of his teachers at Clinton Massie High School in Clarksville, a small town about 40 miles southeast of Dayton. Looking back, Sollar admits, "I did what I had to do to get out of school." No matter; a job at GM beckoned.

For more than a decade, life at the truck plant was good. In 2008, the end came quickly. The economy tanked, and one Dayton manufacturing plant after another closed. Tens of thousands of assembly-line workers lost jobs. Many of them lost houses. A few lost hope.

Alexis Ponder (center) is young — only 23 — but she's already a role model for her sisters, 13-year-old Aliya (left) and Charisse, 15. The younger girls are both enrolled in the Dayton Early College Academy, the rigorous charter school from which Alexis graduated, earning both a diploma and an associate degree.

"I've had a few friends commit suicide," Sollar says. "A lot of them gave up."

Sollar wasn't immune to feelings of desperation. The manual labor skills he had acquired during a decade on the assembly line qualified him for next to nothing. He didn't know what to do.

"It was a nightmare," recalls Sollar, who married around the time of his layoff. "I was scared to death."

With few viable options, he enrolled in classes at Sinclair Community College. Taking at least 18 credits per term for three years, he was frequently on campus from 7 in the morning until 9 at night. With help from tutors, he completed required remedial courses and earned a certificate in robot repair. Emboldened by that success, he used the certificate as a steppingstone and set a goal of earning a two-year degree.

"I wanted to retool myself to find a better job to support my family," Sollar says.

He did, graduating from Sinclair in 2011 with an associate degree in automation and control technology. Even before the college awarded him the degree, he received two job offers — on the same day. His current employer, Gosiger Inc., pays him to wire and program robots for its design fabrication team.

Four years after Sollar's world collapsed, the desperation has subsided. His son, Landry, was born a year ago. Naturally, he wants what's best for his child. "I don't want him to go through someone telling him he's 'not college material' or being in his 30s and trying to find a new job."

"We've already started a college fund for him," Sollar says. "Once you get that degree, it's yours. No one can take that away from you."

A few years before Sollar would lose his job, Alexis Ponder jumped at the chance to attend the Dayton Early College Academy (DECA). The charter school's mission, preparing "urban learners from the Dayton Public School District to go to college and be the first in their families to graduate," intrigued her.

While completing DECA's rigorous high school curriculum, Ponder also took classes at Sinclair and at the University of Dayton. She is one of seven students in her DECA class who graduated with a diploma and an associate degree.

"I saw an opportunity and wanted to take advantage of it," says Ponder, one of five girls and the first person in her family to earn a postsecondary credential. "I wanted to go to college."

Ponder says that earning a sub-baccalaureate degree in high school steeled her for the rigors of a four-year degree program. Of necessity, she learned time-management skills and perseverance. The experience likely helped her to avoid becoming a first-generation college casualty. Statistically, students who don't have a parent who made it through college are more likely to drop out of postsecondary institutions than their peers with a parent who earned a four-year degree.

"The associate (degree) was a foot in the door," she says. "It was overwhelming, but it prepared me for the BSN level."

Ponder's success has rippled through her entire family. Two sisters are in the DECA program, and two others attend college, one at Columbus State Community College, the other at Miami University in Oxford, Ohio. Ponder is an inspiration, says a younger sister, Charisse, who wrote a paper, "The American Dream," about Alexis' influence. Their mother, who worked at home for years, is pursuing a degree in human resources management through the University of Phoenix. Their father, who worked at the Delphi automotive plant before it closed, is also pursuing a credential, studying HVAC systems at the Dayton campus of Kaplan College.

Alexis Ponder is just getting started. While at Xavier, she learned of a severe and persistent shortage of nursing professors, and that has her thinking about entering a doctoral program that would qualify her to teach aspiring nurses. She is also interested in women's studies, community healthcare and public health.

"That's what I'm considering right now," she says.

Sollar and Ponder are two sub-baccalaureate graduates among millions nationwide — two data points on a trend line that runs through Dayton. As people and businesses here try to rebound from a devastating economic slump, sub-baccalaureate credentials — certificates, associate degrees, state-issued education credentials, corporate certificates and badges, etc. — have become a cost-effective, flexible and highly accessible means for providing just-in-time training and education.

Dayton-area business leaders and their public-sector counterparts endorse sub-baccalaureate credentials as a good way to bridge the skills gap — the disparity between qualifications needed by employers and those possessed by would-be workers. (See accompanying story.) Too often, say business leaders, open positions go unfilled because available workers lack specific technical skills. If left unchecked, the skills gap will widen, stretched by technological innovations that can remake entire industries quicker than you can say "iPhone."

Some educators see associate degrees and credentials as practical packets of education that help to prepare people for careers while also providing steppingstones to more education. They help older workers, like Sollar, who need new skills to be employable in a fast-changing labor market. In the Dayton area, educators at K-12 and two-year institutions are among the most enthusiastic proponents of sub-baccalaureate credentials.

"Somewhere we got the idea that (only) college credits validated skills," says Amy Leedy, supervisor of adult education at Miami Valley Career Technology Center (MVCTC). "Nothing against degrees, but it's not the only way we should identify skills. … You have to be more nimble today. Let's be honest, (traditional) higher education is not suited to rapid change."

At a time when the cost of a four-year degree at some selective institutions exceeds a quarter of a million

Measuring the skills gap

A growing number of employers, particularly those in advanced manufacturing and other highly technical industries, cite difficulty in finding qualified workers.

A June 2011 report by Deloitte Development and The Manufacturing Institute, *Boiling Point? The Skills Gap in U.S. Manufacturing*, examined the nature of the skills gap and its impact on companies' performance.

According to results of a survey of more than 1,100 manufacturing executives, 67 percent of respondents reported a moderate to severe shortage of available qualified workers. The shortages were especially severe for skilled production positions such as machinists and technicians, with 83 percent of respondents citing difficulty finding suitable workers for these jobs.

Also, well more than half of respondents — 56 percent — said they expected the skills gap to widen in the next three to five years.

The survey revealed several compelling points from the employer's perspective, including the following:

- The hardest jobs to fill are those that have the biggest impact on performance.
- The growing shortage of talent threatens the future effectiveness of the U.S. manufacturing industry.
- The changing nature of manufacturing work is making it harder for talent to keep up.
- Educational institutions have a role in "creating a clear path for students to receive the right skills and training to prepare them for a career in manufacturing."

Seeking to close this skills gap, employers spend massive amounts to educate and train their own workers.

Evidence of this comes from Corporate Voices for Working Families, which this summer issued preliminary findings from a major report, *A Talent Development Solution: Exploring Business Drivers and Returns in Learn and Earn Partnerships*. The report notes that American businesses spend $485 billion annually on training and development, a total that "exceeds public investment in higher education.

Recent labor statistics also underscore the reality of the skills gap, providing clear evidence that employers are willing to pay a premium for well-educated workers.

In their August 2012 report, *The College Advantage*, researchers at the Georgetown University Center on Education and the Workforce note that college-trained workers have fared far better in the recession than those who hold no more than a high school diploma.

The report points out that, even though associate degree holders lost 1.75 million jobs because of the recession, they've already gained back 1.6 million of those jobs. What's more, these two-year degree holders are continuing to regain jobs in the ongoing (if sluggish) recovery. Meantime, workers with no more than a high school diploma lost more than 5.6 million jobs during the recession — and they're continuing to lose jobs even as the economy recovers.

"The gradual shift to more-educated workers has been going on for decades," the report concludes, "but the recession gave it a mighty push. It also left the country with an urgent need to … train more workers for the more skilled jobs."

Todd Sollar and his wife Sarah are already working to build the best possible future for their 1-year-old son, Landry. "We've already started a college fund for him," says Sollar. "I don't want him to go through someone telling him he's 'not college material' or being in his 30s and trying to find a new job."

Amy Leedy is supervisor of adult education at the Miami Valley Career Technology Center, where Nicholas Weldy (left) serves as superintendent. Both see tremendous value in sub-baccalaureate credentials. "Nothing against (four-year) degrees, but it's not the only way we should identify skills," says Leedy. "You have to be more nimble today. Let's be honest, (traditional) higher education is not suited to rapid change."

dollars, cash-strapped families view sub-baccalaureate degrees as a financially prudent alternative to residential colleges — a way to get some education without going deep into debt. In some cases, students are using credentials to gain employment (and income) that allows them to pursue (and pay for) more education.

"Traditional education struggles with doing anything other than four-year degrees," says Nicholas Weldy, MVCTC's superintendent. "They're still on the agrarian calendar. Their hands are tied."

Forward-thinking educators and policy analysts see in sub-baccalaureate credentials an opportunity to break the cycle of poverty. Giving low-income and other at-risk high school students the chance to earn a certificate or associate degree confers several benefits. Earning a credential can demystify the college-going process for those who have had little or no experience with it. For some students, sub-baccalaureate credentials defang the shadowy creature known as higher education. Earning a sub-baccalaureate credential also gives students a chance to test careers and find mentors.

Sub-baccalaureate credentials also inject dynamism that can smooth the path to higher education — a path that is traditionally linear and generally lacks easily navigable on-ramps and secondary roads. These alternative routes are increasingly vital for nontraditional learners who constitute the majority of today's postsecondary students.

Think of it this way: Higher education is meant to function like a heart, pumping innovation, information and skilled workers into the economy and the body politic. Over time, the system has become less effective. Just as cholesterol deposits diminish blood flow and high blood pressure hardens arteries, our system of higher education has become inefficient, hampered by inflexibility and high costs. Sub-baccalaureate credentials sprout like tiny alternate cardiovascular pathways, branched networks that quickly form to maintain vital functions at a time when some higher education pathways have become blocked.

The widely held, almost reflexive definition of college — a four-year, on-campus, residential experience leading to a bachelor's degree — is no longer sufficient. It's not broad enough, not flexible enough, just not good enough to work for millions of people, or for the nation as a whole.

That realization is starting to sink in, even at the highest levels. As President Obama noted earlier this year, when his administration talks about "higher education, we're not just talking about a four-year degree. We're talking about somebody going to a community college and getting trained for that manufacturing job."

An economic imperative

Sub-baccalaureate credentials are gaining traction of necessity.

A new economy is emerging from the wreckage of the old. It demands skilled workers to take on competitors on multiple continents. By 2018, experts say, almost two-thirds of jobs will require at least a sub-baccalaureate credential. This reflects a massive and quite recent shift in labor market requirements. Even as recently as 1970, only about one-fourth of middle-class jobs required anything beyond a high school diploma.

In fact, the old economy is shifting in multiple ways. Nationally, millions of baby boomers will retire in coming years, a phenomenon some have dubbed the "silver tsunami." The exodus could intensify the shortage of skilled workers. "We're going to run short of technicians in the very near future," said Rich Orbain, manager for General Motors' Service Technical College, in an August business report published by *USA Today*.

That same month, American Public Media's Marketplace radio program reported that the northern California utility Pacific Gas & Electric (PG&E) anticipates up to half of its workforce retiring in the next five years. In response, PG&E has created PowerPathway, a program to train the next generation of utility workers.

One of the trainees, Olatungi Lawrence, told Marketplace that he applied for the training program because people with master's degrees can't find work. "If I can get a job now and work towards that education, that's a great position to be in, instead of having to go through four years of college and owe a whole bunch of money and have no way to pay for it," Lawrence said.

Indeed, families in Dayton and elsewhere are finding it increasingly difficult to pay for a traditional four-year degree. "The economy and the increase in the cost of a four-year degree have really impacted our kids," says Judy Hennessey, superintendent and CEO of the Dayton Early College Academy. "A lot of them are weighing $40,000 to $50,000 in debt versus starting (a career) with a technical degree" or certificate.

Or they "are entering the military after a year of college," she says. "Their families can't help. A lot of 18- to 20-year-old kids get very scared about accumulating debt."

The changing contours of the economic landscape are certainly nothing new to the thousands of displaced industrial workers in this once-thriving Ohio city.

The Dayton of 1900 was the Silicon Valley of its era, observers say. At the time, it claimed "more patents per capita than any other U.S. city," writes Samuel R. Staley

Judy Hennessey, superintendent of the Dayton Early College Academy, emphasizes both rigor and support in the DECA program. "My goal is to incorporate college-level coursework for all students," she says. "For kids who grow up in poverty, getting them out of the neighborhood and onto a college campus is critical." What's more, the school's intensive mentoring program ensures that "everybody here has somebody in their corner."

Dayton Public Schools Superintendent Lori Ward has seen first-hand how the shift toward a knowledge economy — and away from industrial, blue-collar jobs — has increased the value of post-high-school education. Now, she says: "Our number one goal is to make sure our graduates are college- and career-ready."

for newgeography.com. It was a city of entrepreneurs and business titans, including aviation pioneers Orville and Wilbur Wright; Charles Kettering, the automotive innovator whose inventions transformed General Motors into a global powerhouse; and John Henry Patterson, father of the modern factory system and founder of National Cash Register (NCR), which Staley called "America's first truly global business."

For more than a century, Dayton had a muscular economy that punched well above its weight. At one time, it was home to six Fortune 500 companies and more GM workers than any city outside Michigan. Today there are no Fortune 500 companies in Dayton; NCR decamped in 2009 after 125 years. The last recession stripped the city of 42,500 jobs, more than 10 percent of its workforce, reports the *New York Times*.

The losses show. On a recent weekday, a person taking an early-evening walk through Dayton's downtown could traverse entire city blocks without meeting another pedestrian. Even the homeless seem to have left for something better. Yet there are signs of recovery. In a recent one-year period, the city added 4,800 jobs.

"Young people in Dayton are recovering from the greatness of GM," says Lori Ward, superintendent of Dayton Public Schools. "They saw relatives make good livings and move to the suburbs. Many are from third-generation families that rose to the middle class without a degree. We've skipped a couple of generations of expectation that college is where you need to be," Ward adds. "Our number one goal is to make sure our graduates are college- and career-ready."

Sub-baccalaureate credentials are part of the answer. A pressing question, Ward says, is "How do we mesh certificates and degree programs?"

There is much to knit together. The southwest region of Ohio, with Dayton at its center, includes four community colleges, two Historically Black Colleges, a faith-based college, the largest private university in the state, and the Air Force Institute of Technology, among others. That diverse collection of postsecondary institutions provides a fertile environment in which sub-baccalaureate credentials can form new pathways and connections among various institutions.

"What you want in a community is a strong portfolio of institutional options," says Thomas Lasley, former dean of the University of Dayton's School of Education and Allied Professions. "Dayton is unusual for having such a range of institutions in a mid-sized city."

Dar Borradaile (center), an aviation maintenance instructor for the Miami Valley Career Technology Center, works with students (from left) Trevyn French, Coltan Neal, Brandon Bunger and Joey Baty. The MVCTC program trains students to become FAA-certified airframe and power plant technicians.

A coalition of the concerned

The severity of challenges facing Dayton has galvanized a broad swath of the region's stakeholders, many of whom embrace sub-baccalaureate credentials as a means of overcoming the area's economic hurdles. Participants include local and state governments, the business community, the not-for-profit sector, K-12 and postsecondary institutions, and Wright-Patterson Air Force Base.

Lasley leads a local initiative called Learn to Earn Dayton, funded largely by the Dayton Foundation and the Mathile Family Foundation. The group's primary goal is to get more students from Montgomery County to earn degrees. At present, about one-third of those students do so, a rate of attainment far below today's needs, let alone the demands of an increasingly complex global economy.

Lasley's approach seeks to improve students' performance at every stage of the education pipeline, beginning with kindergarten preparedness. He says sub-baccalaureate credentials can be steppingstones not only to four-year degrees, but also to better employment prospects. Each additional year of education equates to an 11 percent increase in income, he notes.

New pathways are a necessary alternative to the all-or-nothing thinking that has persistently defined postsecondary success as bachelor's degree attainment, says Lasley. The world has changed, and the institution-centric, take-it-or-leave-it model isn't working. Students shouldn't be forced to conform to existing programs that don't prepare them to prosper in a fast-changing world.

Frank DePalma, superintendent of the Montgomery County Educational Service Center, says it's important for K-12 and postsecondary systems to smooth out the transitional wrinkles in early-college programs. "If we can get more (high school) students to earn freshman college credits in math and English, they'll have a higher chance of staying in" once they enroll in postsecondary programs, he says.

Rather, education must adapt to evolving economic reality. We already know, says Lasley, that there will be demand for workers to fill jobs in 2020 for which no degree programs now exist.

"We're pumping too many kids into the economy without skills," Lasley warns. "We're pumping kids into poverty."

Weldy, superintendent of the Miami Valley Career Technology Center, says certain types of institutions — secondary and career schools, two-year institutions, for-profit colleges — are poised to roll out programs that award meaningful sub-baccalaureate credentials. MVCTC has a dual mission: It's a public secondary institution that serves 27 school districts and is also one of 56 career centers in Ohio that specialize in certificates.

"We try to make sure that students are college- and career-ready," says Weldy on a day when General Electric is holding a job fair on campus. "They need the full spectrum of credentials."

A current student, Jimmy Wilhelm, 21, is in an MVCTC program that is training him to become an FAA-certified airframe and power plant technician. (The FAA test includes written and oral sections and a practical test.) When he completes the certification and becomes rated, he'll work on airplane bodies and engines.

This is Wilhelm's second time through the program. The first was when he attended high school at MVCTC, earning a diploma but not the certificate. Since graduation, he's worked at a McDonald's restaurant. High school friends who earned the FAA certificates work at PSA Airlines and GE Aviation. Their take-home pay is "more than four times what I make," Wilhelm says. "They have houses and nice cars. That's why I wanted to go back."

Those companies also pay for employees to get more education in a field that "is pretty hot," says Wilhelm, whose brother Joey, a 17-year-old high school senior, is also in the program. Jimmy Wilhelm is single, but he envisions getting married and having a career that can support a family. For now, he is focused on finishing classes and earning the certification.

In the real world, says Weldy, a "credential is an informal contract between us and business. … When people say there are no jobs, they're missing the mark. There are jobs if you have the skills."

For his part, Wilhelm says, "I just want to get out of McDonald's."

Thomas Lasley, former dean of the University of Dayton's School of Education and Allied Professions, now directs the Learn to Earn Dayton initiative. He says sub-baccalaureate credentials can have a significant payoff, with each year of post-high-school education correlating to an 11 percent increase in one's income.

Since 2009, the Ohio Board of Regents has taken steps that have bolstered the currency of certificates. Requiring all public institutions of education to operate on a semester calendar has improved transferability in general. The board's actions have also made credentials more "stackable," a feature that lets credential holders use them as platforms for getting more education without having to recertify skills or knowledge they've already attained.

For example, a state-certified nurse's aide could use the credential as a steppingstone to becoming a licensed practical nurse, getting more education and qualifying as a registered nurse, then earning a bachelor's degree in nursing.

"Public articulation has improved tremendously in the past five years," says Sean Creighton, executive director at the Southwestern Ohio Council for Higher Education, an organization whose motto is: "Educated. Employed. Engaged. Citizens."

Not all of the wrinkles have been smoothed out. In some instances, "the biggest barrier seems to be who gets the money for juniors and seniors to take freshman-level college courses," says Frank DePalma, superintendent of the Montgomery County Educational Service Center. And there are inconsistent requirements for instructors at secondary and postsecondary institutions. A college professor doesn't meet high school credentialing standards and vice versa.

Creighton concurs, saying that Ohio's Post-Secondary Enrollment Options (PSEO) programs can create tension between secondary and postsecondary institutions; when high school students take classes at a community college, the money goes with them.

Further complicating the problem is a U.S. credentialing system that is organized essentially as a series of separate silos and is inadequate to the task it must perform in today's dynamic environment. The system is poorly understood and not easily navigable by students, parents or employers. The solution involves "getting people around the table and mobilizing key leaders who haven't participated in the conversation before," says Creighton.

The benefits of early college make it imperative to resolve those issues. "If we can get more students to earn freshman college credits in math and English, they'll have a higher chance of staying in because they will have passed two required courses that many of them fail," DePalma says.

Picturing what's possible

In Dayton, leveraging sub-baccalaureate credentials begins in high schools and career centers. Introducing young people to postsecondary education while they are in high school serves to focus aspirations and to create a sense of attainability.

"When I grew up on the block, there were nurses, doctors, teachers and clergymen," says Hennessey. "I was able to see a lot of different professionals. That's not happening now."

Young students need opportunities to explore career options and "to know what they're good at and what they like to do," Hennessey says. "My goal is to incorporate college-level coursework for all students. … For kids who grow up in poverty, getting them out of the neighborhood and onto a college campus is critical."

At DECA, the first of about 16 early-college high schools in Ohio (there are about 250 such schools in the country), students have many chances to test careers. The school's small size (between 400 and 600 students) and rigorous teacher-mentoring program guarantee that "everybody here has somebody in their corner," Hennessey says.

The school requires students to perform service work and to shadow career workers in their professional habitats. Students also must complete two 40-hour internships — observing a judge presiding over a trial, for instance, or following creative workers at a design firm.

In the process, DECA's students have learned that employers are looking for workers who are coachable, punctual, creative, get-the-job-done self-starters. Asked if there should be a credential that signifies attainment of those skills, DECA's principal, Dave Taylor, says the concept "makes sense."

There is a disconnect, however, between what employers say they want and what four-year institutions look for in applicants. "We found that colleges don't have an interest in what kids can do; they want ACT scores," Taylor says.

The myopia of some four-year institutions notwithstanding, companies are looking to DECA as a reliable source of talent that can help them understand the needs of minority customers. Representatives of firms that do business in multiple sectors, from insurance and investment to defense and legal, have come calling.

"I say to our kids, 'You'll create products that no one else thought of because you see the world' " in a different way, Hennessey says. "We see ourselves as engines of economic development."

Premier Health Partners, one of the region's largest employers, sent its entire executive team to DECA. "They want a pipeline," explains Hennessey. The company wants "someone who can come in as an LPN with state licensure, and they (Premier) will help them to work toward becoming an RN emergency room specialist or pulmonary specialist. They'll pay for that."

And it's not just nursing. Sub-baccalaureate credentials

Jimmy Wilhelm, 21 (left), and his younger brother Joey, a 17-year-old high school senior, are both enrolled in the aircraft maintenance program at MVCTC. Here working with instructor Eric Bickel, the Wilhelm brothers are eager to start their careers in a field that Jimmy calls "pretty hot."

qualify people for a variety of technical positions (in imaging, radiology, physical therapy and medical-records coding, among others) that provide many opportunities for career advancement, says Bill Linesch, chief human resource officer at Premier Heath Partners.

"The value proposition (of sub-baccalaureate credentials) is really strong," Linesch says. "When people get a certificate or associate degree, it provides them with a point of entry into healthcare."

Premier Health encourages employees to earn a bachelor's degree — it's expected of nurses — yet the organization acknowledges the value of earning an associate degree first. "The two-year colleges are a little bit more engaged with employers in terms of (providing) what students need to come in the door and be productive. They are a big part of our employment pipeline," says Linesch.

Quality assurance

Third-party validation of sub-baccalaureate credentials, such as the FAA certification sought by Wilhelm, is one of several features that substantiate their value. The transfer and stackability of certificates, for example, "goes much easier when you have third-party credentials," says MVCTC's Amy Leedy. "When you have a third party that recognizes skills, it makes stacking easier."

"We've tried to align all certificate programs with third-party credentials," she says, noting that 60 percent of Miami Valley's high school graduates enroll in a postsecondary institution.

Validation can come from state boards, federal agencies and trade groups. The National Institute for Automotive Service Excellence, for example, has provided ASE certification to 350,000 people throughout the automotive industry. Similarly, the John Deere company, the world's largest maker of agricultural machines, "has its own education tracks," says Leedy.

Sub-baccalaureate credentials have practical value. They signify attainment of skills that closely align with employers' demonstrated needs. The Community College Research Center validated that view in a 2012 report, *Employer Perceptions of Associate Degrees in Local Labor Markets: A Case Study of the Employment of Information Technology Technicians in Detroit and Seattle.*

"Employers expected certain qualities in associate degree holders that they did not expect in bachelor's degree holders," write study authors Michelle Van Noy and James Jacobs. "To some extent, hiring managers noted that they expected hands-on skills in associate degree holders, but they did not mention this quality among bachelor's degree holders."

"As one hiring manager stated: 'They've got hands-on experience probably through lab work, they understand theory, how networking works, they've studied and they know the fundamentals of all of the technical parts of the job. So I know they're capable of coming in and contributing immediately.' "

By comparison, hiring managers had a different view of prospective employees holding bachelor's degrees:

"Somebody who goes to a four-year degree and studies MIS (master's of information science) probably doesn't have the same grasp of some of this stuff as somebody who went and got their AA in computer networking or something that's really, really applicable. So the community colleges have some good programs that are more hands-on toward that. And we love it."

Hiring managers also found that workers with sub-baccalaureate credentials were more eager to prove themselves.

A study by the Georgetown University Center on Education and the Workforce looked specifically at postsecondary certificates. The report, *Certificates: Gateway to Gainful Employment and College Degrees* (June 2012), makes a strong case for the value of these post-high-school credentials. (See accompanying list of highlights.)

The report's authors concluded that certificates "have the capacity to raise the country's global educational standing by both encouraging further education and degree completion, as well as by providing gainful employment."

"In an economy in which the lockstep march from school to work has been replaced by lifelong learning, certificates provide flexible learning modules that fit wherever necessary in an increasingly nonlinear education and training system."

Highlights from 'Certificates'

Among the report's findings:

- Certificates are flexible and can serve as a steppingstone to further education and training or as a supplement to workers who already have a college degree.
- One-third of certificate holders also have an associate, bachelor's or master's degree. In two-thirds of those cases, degree holders earned the certificate first.
- On average, certificate holders earn 20 percent more than high-school-educated workers.
- In some cases, holders of certificates have earnings substantially greater than many people with college degrees. For example, men with certificates in computer/information services earned an average of $72,498 per year — earnings that exceed those of 72 percent of men with associate degrees and 54 percent of men with bachelor's degrees.
- Students in certificate programs, including the least advantaged students, tend to finish programs at for-profit institutions more quickly.

Center on Education and the Workforce, Georgetown University

Nineteen-year-old Mariah Henderson, who studied allied health at Ponitz Career Technology Center, has a clear, ambitious plan for her further education. In January, she'll begin an 11-month program at MVCTC that will qualify her as a licensed practical nurse. Then it's off to an LPN-to-BSN program at Kettering College and Medical Arts, and finally to midwife school.

A front-line view

Economic reports and their authors tend to view the impact of sub-baccalaureate credentials from afar, quantifying them in terms of placement rates, earnings and overall economic impact.

Educators on the front lines often have a different perspective — a close-up view of their impact on people. At the Ponitz Career Technology Center — part of the Dayton Public Schools system — teachers, administrators and students see first-hand the impact of certificates earned by high school students. They see what it means to begin work on an associate degree before earning a high school diploma.

Students who pursue those credentials while in high school say they get an advantage in determining a career path that fits their interests and passions. Exposure to postsecondary programs engenders confidence and motivation, students say. And biting off manageable chunks of education bolsters persistence.

Nor is the affordability of sub-baccalaureate credentials lost on Ponitz's students, many of whom come from less-than-affluent households. Consider a few of Ponitz's recent graduates:

Mariah Henderson's father was diagnosed with cancer when she was 12. Henderson became his caretaker, helping him to dress and accompanying him to his chemotherapy treatments. Though he died in 2006, the experience helped shape Henderson, now 19.

"I always knew that I wanted to be in healthcare," she says. "I wanted to be a doctor."

At Ponitz, she was on the Allied Health Pathway, a program that required her to follow healthcare workers at a hospital. Working on the labor and delivery floor with new and expectant mothers, Henderson discovered that she wanted to be a midwife. Attaining that goal will require her to earn a bachelor's degree in nursing.

She graduated from Ponitz as a state-tested nursing assistant with a certificate in allied health. The certificate allowed her to get a job in a nursing home, which led to a position as a sitter at Kettering Hospital, where she monitors high-risk patients.

She attended Wright State for one year after high school with the intention of getting into a BSN program. Wright State "was a reality check," says Henderson, who, like many first-generation college students, was overwhelmed

ChaReese Robinson, shown here with Ponitz Career Technology Center instructor P.R. Frank, wants to transform her lifelong fascination with cameras into a career as a fashion photographer. She got her start at Sinclair Community College and is now attending Urbana University, but she plans to pursue a four-year degree at Clarkson University in Atlanta.

by the experience. "I always set big goals for myself, but I know in order to get there I need small goals."

Henderson says the healthcare professionals at Kettering told her that the Wright graduates were book smart but lacking in clinical experience. Changing course, she now plans to begin an 11-month program in January at Miami Valley Career Technical Center. When she completes it, she will be qualified to work as a licensed practical nurse. After that, she intends to enroll at Kettering College and Medical Arts, which has a three-year LPN-to-BSN program. Then she's off to midwife school.

"What gets me through is my determination," she says. "I know that my father would want me to finish."

ChaReese Robinson always wanted to be a photographer. She remembers clicking away when she was a young girl, always trying to capture the moment. "I had a little camera that didn't work, but I thought it did," she says.

At Ponitz, she studied digital design. Taking classes at Sinclair Community College, she picked up technical skills and developed proficiency in computer software, including Adobe InDesign. She saved for two years to buy a top-shelf digital camera and used it to win a national photography competition.

A freshman at Urbana University, Robinson plans to transfer to Clarkson University in Atlanta. She says she is drawn to bigger cities. She has worked at Moto Photo and been paid to photograph weddings, but she has a bigger goal in mind. "I want to be a photographer in the fashion industry."

Darrius Thomas is pursuing a high-end credential, as a certified public accountant, because he says it will help him realize his dream of becoming "a global businessman." The vision of that future began to take shape while he was on the Business Pathway at Ponitz, which awarded him a diploma this year. While at Ponitz, he was a leader at the student-run credit union, and he took accounting classes at Sinclair Community College, where he is pursuing an associate degree. He intends to take courses in entrepreneurship at Wright State.

Thomas wasn't always on track. He is one of eight children in a family he describes simply as "poor." His

father, who encouraged him to enroll at Ponitz for the athletics, is incarcerated. When his mother was diagnosed with cancer, he became angry. He got into fights.

The opportunity to take college classes while in high school and work toward a two-year degree and the CPA turned things around. "It helped me to mature faster than others I graduated with who didn't have the experiences I had," Thomas says. "Now it doesn't feel like I'm lost."

Leticia McKay's dream of styling hair at her own salon came into focus while taking business classes at Sinclair Community College. She was attending Sinclair and pursuing a diploma on the business/cosmetology track at Ponitz. "The business class at Sinclair inspired me," McKay says. "Doing a business plan showed me that it's not as hard as I thought."

McKay grew up as the only girl in a family of four boys. She began braiding the hair of Barbie dolls and moved on to styling friends' hair. The cosmetology program at Ponitz required her to pass Ohio's cosmetology board test, which led to a six-month internship at a salon, Artistic Hair Design. She is working toward an associate degree in business, but at a comfortable pace. Pursuing a bachelor's degree at a four-year institution would be too much, too fast. "I have to stay focused on one goal at a time," she says. "More than that, I get scattered."

Her five-year plan is to be out of college and out of her home city. Her 10-year plan is to "have my own shop."

"I'm a simple kind of girl with big dreams," she says.

Felicia Thompson and **Josephine Walker** leveraged their sub-baccalaureate credentials into dental careers. Graduating from Ponitz in 2001 and 2002, respectively, both women passed the Ohio state board while in high school to become certified dental assistants.

Prior to graduation, Walker landed a position as a paid intern. After earning her diploma and certificate, she worked for nine years as a dental assistant. In 2010, she took classes at Sinclair for a year and passed the state board to qualify as an Expanded Function Dental

Darrius Thomas' vision of business success came into focus when he was a student at Ponitz, taking accounting classes through Sinclair Community College. He's now pursuing an associate degree at Sinclair, but he won't stop there. Next stop is Wright State University, where he plans to study entrepreneurship on his way to becoming a certified public accountant.

Leticia McKay studied cosmetology at Ponitz, but thanks to an early-college business class through Sinclair, she's set her sights higher than hair styling. A self-described "simple kind of girl with big dreams," McKay is now pursuing an associate degree in business and hopes to own her own shop someday.

Auxiliary (EFDA). The extra training qualifies her to restore teeth and to earn more money.

"I love what I do," Walker says.

Thompson, who came from a single-parent home, admits she originally chose the dental track at Ponitz because "the uniforms were cute." But it didn't take her long to get serious about her career. Four years out of Ponitz, in 2005, she completed EFDA training and certification because she "needed a pay increase." And soon thereafter, she took out a student loan and enrolled full time in an associate degree program. She graduated, in 2007, as a fully qualified dental hygienist. It will take years to pay off the debt, but she says the investment in her career was worth it.

Deton Brookshire and **Talisha Bennett**, 2011 Ponitz graduates, studied criminal justice and law enforcement in high school. Brookshire recalls meeting instructors from the local community college who visited Ponitz and ran the school's obstacle course with him while wearing full body armor. Brookshire and Bennett are continuing those studies at Sinclair Community College, which has a police academy run by a former SWAT team commander. Police officers can also earn certificates (in firearms, batons, technical driving, chemical warfare, etc.) through the Ohio Peace Officer Training Academy.

Both Brookshire and Bennett say they will apply for the Dayton Police Academy this spring. "I've wanted to be a police officer since I was 6," Bennett says.

Jonique Mitchell is working toward an associate degree in graphic design at Sinclair. She began taking classes there while attending Ponitz, which awarded her a high school diploma in 2010. She is following a passion she's had since she first "picked up pencil and paper and started drawing Snoopy."

Felicia Thompson graduated from Ponitz in 2001 and went to work as a dental assistant, but it didn't take her long to recognize the value of additional education. By 2005, she'd earned a valuable certification; two years later, she completed an associate degree program and became a fully qualified dental hygienist.

Sinclair Community College President Steven Johnson (left) and Phil Parker, president and CEO of the Dayton Area Chamber of Commerce, are just two of many local partners in the Learn to Earn Dayton initiative. Parker says the effort "could be the most significant community-wide initiative that we take on in the next decade."

Her plan is to transfer to the University of Cincinnati, earn a bachelor's degree, land a job with a big company in a big city — Disney or Warner Bros., perhaps — and eventually strike out on her own.

"I want to stay in the Dayton area, but I know I'll have to venture out," Mitchell says. "My goal would be to work for a big company, but I really want to own my own."

A two-year treasure

The nexus of the sub-baccalaureate movement in the Dayton area is Sinclair Community College. In marked contrast to the city's moribund downtown area, the two-year institution bustles with activity. On a typical day, the campus teems with thousands of students who reflect a strong demographic cross-current.

This is no idealized college campus, no ivy-covered ivory tower for well-off teens and twentysomethings. Sinclair's students have back stories. In other words, they live and learn in the real world.

"Only about 20 percent of college students in the United States fit that perfect world (model)," says Steven Johnson, Sinclair's president. The other 80 percent "have other commitments. … They need to feed their families."

Most of Sinclair's students have neither the money nor the time to spend four years on a residential college campus, but "they can get an amount of education that … is recognized by employers as valuable," he says.

Dayton draws its students from area high schools and area businesses, from the unemployment rolls and the ranks of lifelong learners. In 2009, 5,757 displaced workers enrolled at Sinclair. Some already have four-year and advanced degrees. Surveys conducted on behalf of the college indicate that about half of Montgomery County residents have enrolled at Sinclair at some point in their lives.

In 2011, Sinclair worked with 43 of the *Dayton Business Journal's* top 50 employers and provided training to more than 266 companies. Sinclair provides Defense Acquisition University courses that prepare people for jobs at Wright-Patterson Air Force Base — the U.S. Air Force's main buyer and the Dayton area's biggest employer.

Since 2010, Sinclair has added academic programs in growing fields such as cyber investigation technology, energy management technology, geographical information

systems, special medical imaging, veterinary technology and unmanned aerial systems (UAS). Analysts predict that UAS will be a multibillion-dollar industry with many applications, including precision agriculture. Most people know of the technology because of the military's use of drone aircraft.

When the college rolled out the UAS certificate program in 2010, Trace Curry took a break from his pursuit of an associate degree in aviation technology and "took a blind leap into it." Getting a credential in UAS is "a huge window of opportunity," he says. "Through gaining the certificate, I feel I will be one of the first people to get (UAS) opportunities in Ohio."

Fulfilling the requirements to earn the certificate also clarified his career goals. Curry says he plans to earn a four-year degree in space studies with a minor in physics. After that, he says he "would love to be with a private contractor or start my own business to do research and development."

Sinclair awarded about 4,300 degrees and certificates in the 2011-2012 academic year, up from 1,538 degrees and certificates awarded in 2002-2003. The college offers 172 different degree and certificate programs and, at a time when postsecondary education and training has become an economic imperative, "we're reaching deeper into populations that normally wouldn't go to college," says President Johnson. In fact, in the past five years, the number of degrees and certificates awarded to women and African Americans has doubled at Sinclair.

The practicality of sub-baccalaureate credentials accounts for their growing popularity, Johnson says. Certificates are affordable, take less time to attain than degrees, and "provide a knowledge, skills and pay boost without having to be an all-or-nothing" proposition, he says. "Certificates are career booster rockets."

The notion that a certificate or an associate degree is somehow inferior to a four-year credential is quaint, and flat-out wrong, insists Johnson. He thinks of sub-baccalaureate credentials as distillations of degrees that require more time and money to attain.

"Society has been calling for modularized education for a couple of decades," Johnson says. "That's what certificates are."

He explains it this way: The recipient of a bachelor's degree who majors in history essentially has earned a certificate in history *and* a lot of general education credits that are unrelated to the area of academic concentration. "When you get a certificate from us, you get the major without the general education credits," Johnson says.

The vast majority of certificates that Sinclair awards are derived from associate degrees, which are "time-honored units of study and achievement embedded within bachelor's degrees." As such, he says, there should be clear pathways from certificates to associate degrees to bachelor's degrees. Indeed, 4,500 Sinclair students transferred to a university in 2010-2011, a marked increase from the 2004-2005 academic year, when the number of transfers totaled 2,550.

Sinclair is also the lead institution in Ohio for a four-state initiative called Completion By Design. The goal of the initiative, funded by the Bill and Melinda Gates Foundation, is to work with inter- and intra-institution partners to help students complete a credential — an industry certificate, institutional certificate, etc. — that will lead to gainful employment.

The aim is to create "better-defined on-ramps to streamlined programs of study that allow students to finish more quickly in significantly higher numbers," says Sinclair's communications office, adding that the college seeks to increase its graduation rate "by at least 40 percent" among students in the 2015 graduating class.

The college recently began implementing the Completion By Design plan, which it hopes will be the model for a cadre of institutions across Ohio.

The state could also look to Dayton for another model — one that aims to bolster economic competitiveness through inter-organizational collaboration.

Deton Brookshire, a 2011 graduate of Ponitz Career Technology Center, is now studying law enforcement at Sinclair Community College. This spring, he plans to apply to the Dayton Police Academy.

"Learn to Earn (Dayton) could be the most significant community-wide initiative that we take on in the next decade or more," says Phil Parker, president and chief executive officer of the Dayton Area Chamber of Commerce. He says the initiative "looks at pre-K and Ph.D. and everything in between. That includes certificates and two-year degrees."

Learn to Earn seeks to correct fallacious thinking about the connection between education and work. First, the business community hopes that educators will come to see that educational attainment has value that is more than merely intrinsic.

"To business leaders, education is a means to an end," Parker explains. "It provides a capable, qualified workforce. Ultimately, it's about people getting a job, being successful and having a great quality of life they can share with their family. … That's a different mindset from education being the end product."

Parker understands this first-hand. He grew up poor in a single-parent home in a small South Florida town. He had two brothers and "a great childhood," but his mother couldn't send him to college. Pursuing an associate degree "gave me the confidence to grow and mature … the time to work and pursue a degree and an opportunity to get a great education and never miss a beat," says Parker, who earned a bachelor's degree and an MBA from the University of Dayton.

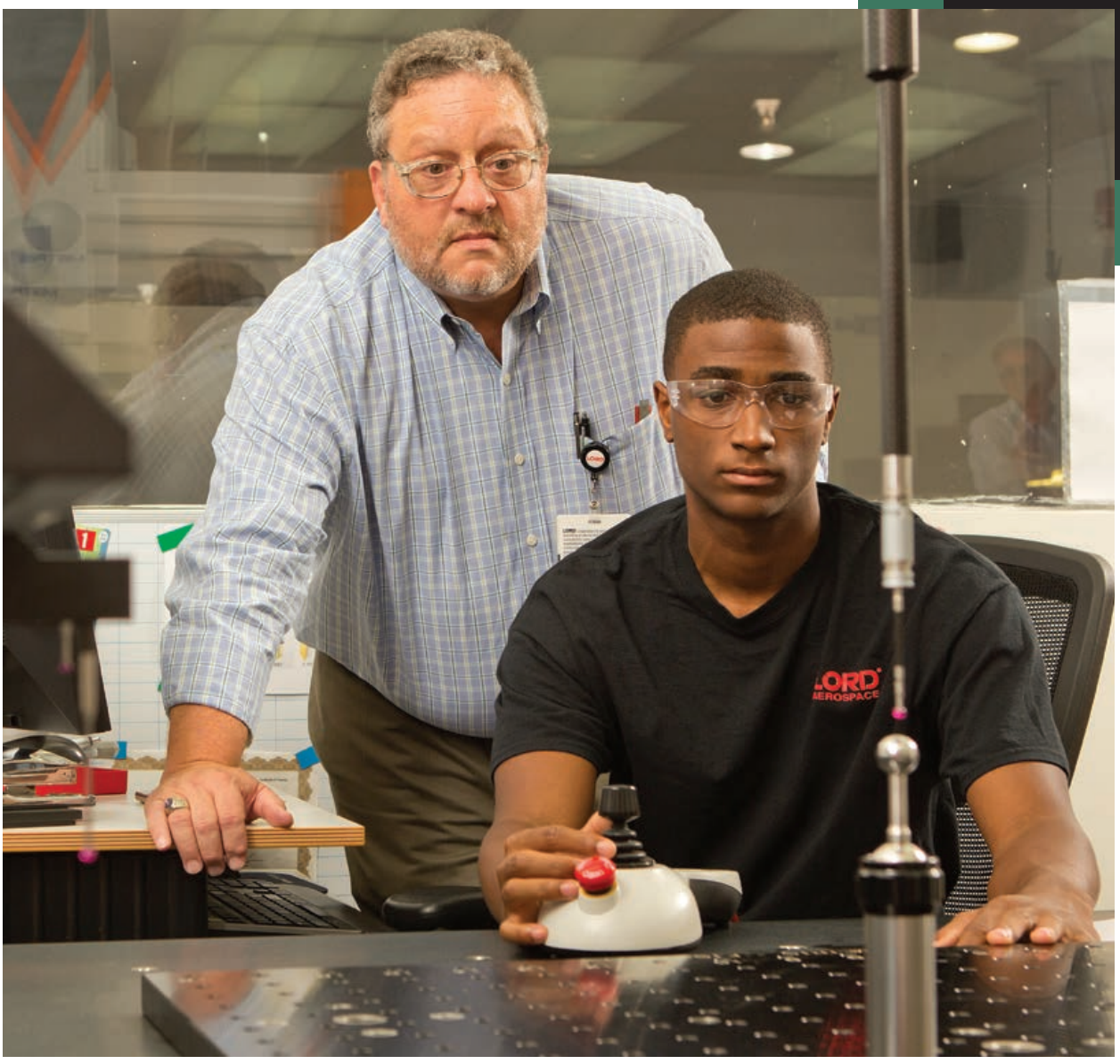
Demichael Wright is treading a similar path. An only child, he was raised by his grandparents. His father visits, but he doesn't know the whereabouts of his mother. Still, he had what he calls "a typical childhood."

After graduating from Ponitz this year, he landed a slot in a mentoring program with the Lord Corporation, which makes aerospace parts. Lord later offered Wright a job that allows him to work while pursuing an associate degree in electronics engineering. He plans to eventually earn a bachelor's, but he wanted to gain work experience and avoid debt.

He listened when his colleagues at Lord told him that "they wouldn't hire a person with a bachelor's but without work experience," says Wright, who couldn't afford tuition at a four-year college anyway, not without being saddled with student loans.

"What we need here are people who can be out on the floor and solving manufacturing issues on a day-to-day

Trace Curry is excited about a certificate program at Sinclair Community College that puts him on the cutting edge of a career in unmanned aerial systems. "Through gaining the certificate, I feel I will be one of the first people to get (UAS) opportunities in Ohio," he says.



Demichael Wright works under the supervision of Steve Ponscheck, a manufacturing engineer at Lord Corporation. Wright, a recent Ponitz graduate, is working at Lord while pursuing an associate degree in electronics engineering.

basis," says Steve Ponscheck, a manufacturing engineer at Lord's Dayton facility. "We are finding out that people with two-year degrees can fit a lot of the needs."

Too many communities believe that simply raising degree attainment will strengthen their economies, Parker says. Increasing the attainment rate matters, he says, but only if the additional credentials are meaningful — that is, if they embody the skills needed by employers. Certificates and two-year degrees have the flexibility to do that.

"In a community like ours, historically heavy into manufacturing, not everyone requires a four-year degree, but employers are asking for more than a high school diploma," Parker says.

Sub-baccalaureate credentials that promote employment while also providing steppingstones to four-year degrees constitute the "sweet spot," Parker adds. The Dayton area's two-year institutions — Sinclair, Clark State and Edison State community colleges — provide "a great feeder" to area institutions that offer four-year degrees.

The key, say Parker and others involved in the Learn to Earn effort, is to forge a system that works well in *both* directions — one that fosters strong relationships between businesses and education providers, and also offers programs that lead students to further opportunities in higher education.

"We're trying to connect all the dots now," Parker says of efforts in Dayton to better align education and corporate interests. "We want people to build careers, not just have jobs." ■

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