

# Texas Classroom Teachers Association

P.O. Box 1489  
Austin, TX 78767

512-477-9415  
1-888-879-8282  
Fax 512-469-9527

<http://www.tcta.org/>



## **Testimony to the Senate Education Committee By Holly Eaton, Director of Professional Development and Advocacy February 27, 2008**

Thank you for this opportunity to give input on this broad and far-reaching interim charge. Regarding the issue of postsecondary success, one of the most consistent messages that students who drop out of school send is that they are bored and not engaged in their education. (Civic Enterprises: The Silent Epidemic, 2006, found that main reason kids dropped out was boredom – students want and need more connection between what they're learning and real world.) Consequently, we would suggest that a major facet of keeping students engaged and interested in their education is flexibility and choices for students in coursework and graduation pathways. Experts in the areas of high school completion and dropout prevention have pointed out that the availability of rigorous Career and Technology courses are extremely valuable in increasing the percentage of students, particularly at-risk students, in meeting postsecondary success standards. For example, the Southern Regional Education Board recommends that states create optional programs of study pathways for college and careers and embed the most essential college and career-readiness standards into the Career and Technology curriculum.

[http://www.sreb.org/programs/hstw/publications/briefs/04V09\\_ResearchBrief\\_CT\\_studies.pdf](http://www.sreb.org/programs/hstw/publications/briefs/04V09_ResearchBrief_CT_studies.pdf)

Speaking of Career and Technology, we believe that this is certainly an area in which the business community can actively assist in providing hands-on learning opportunities for students by providing apprenticeships in local businesses through an arrangement with the local school district. We believe that there should be some state-level coordinated effort to facilitate a system of apprenticeships on a local level. This kind of arrangement would be a win/win for students and for their potential employers, who could essentially work with schools to "grow their own" employees.

Additionally, it's no secret that employers are clamoring for employees who come out of the educational pipeline possessing not only critical thinking skills, but basic work skills. Making rigorous Career and Technology programs a legitimate part of the mainstream curriculum is an excellent opportunity to help students learn these skills. I have attached several news articles describing the importance of rigorous Career and Technical education to this testimony for your review.

Regarding growth measures, we urge you to ensure that whatever measures are used are scientifically research-based and validated for that particular use. You may be aware that there is actually a set of standards endorsed by the National Council on

(over)

Measurement in Education and the American Educational Research Association that represent a professional consensus concerning sound and appropriate test use in education and psychology. The AERA cautions that if high-stakes testing programs are implemented in circumstances where educational resources are inadequate or where tests lack sufficient reliability and validity for their intended purposes, there is potential for serious harm. Accordingly, one of the standards is that each separate use of a high-stakes test, for individual certification, for school evaluation, for curricular improvement, for increasing student motivation, or for other uses requires a separate evaluation of the strengths and limitations of both the testing program and the test itself.

<http://www.aera.net/policyandprograms/?id=378>

Additionally, many noted researcher have cautioned that the research base is insufficient to support the use of value-added models in particular for high-stakes decisions, particularly at the individual teacher level, and I have attached a summary of that research to my testimony.

Thank you again for this opportunity to give input on these issues.

## Research regarding the use of Value-added models

"*Value-Added Assessment of Teachers: the Empirical Evidence*" by Haggai Kupermintz of the University of Colorado at Boulder, it is noted that there has been little external, peer-reviewed validation of the system in use in Tennessee. Further, the author states "The contention that merely by including in the analysis the student's previous test scores, the system is able to control adequately for all exogenous influences – without actually measuring them – is a radical departure from the conclusions reached by other researchers, as well as from basic intuitions about schooling. It is counter-intuitive for most educators to assume that student, family, or community resources will have only negligible impact on a student's rate of progress, even after prior achievement has been accounted for. Such a radical assertion requires reliable and strong empirical evidence if it is to be trusted to serve as a working assumption for school or teacher evaluations. The only evidence that has been offered to date to support this contention, however, comes from an unpublished report circulated by the University of Tennessee Value-Added Research and Assessment Center."

<http://eps1.asu.edu/epru/documents/EPRU%202002-101/Chapter%2011-Kupermintz-Final.pdf>

The respected Rand Corporation issued a report in 2004 entitled "*Evaluating Value-Added Models for Teacher Accountability*." The summary concludes by indicating that "The research base is currently insufficient to support the use of VAM for high-stakes decisions."

[http://www.rand.org/pubs/monographs/2004/RAND\\_MG158.pdf](http://www.rand.org/pubs/monographs/2004/RAND_MG158.pdf)

An Educational Testing Service study (Sept. 2005) says caution should be used with value-added models (VAM). *Using Student Progress to Evaluate Teachers: A Primer on Value-Added Models*, Educational Testing Service, Sept. 2005

<http://www.ets.org/portal/site/ets/menuitem.c988ba0e5dd572bada20bc47c3921509/?vgnextoid=851dd74ca7cb6010VgnVCM10000022f95190RCRD&vgnnextchannel=4d84be3a864f4010VgnVCM10000022f95190RCRD>

The study says the main problem is that students and teachers aren't assigned randomly, so "teacher effectiveness" found by VAM aren't really valid. "A number of authors have highlighted the distinction between "effects," which are the output of a statistical algorithm, and "effectiveness," which is an interpretation relating to the direct contribution of a teacher to student academic growth.<sup>15</sup> Careful consideration of this distinction in the context of schools brings to the fore the many pitfalls in interpreting "effects" as "effectiveness." This is exactly where the lack of randomization causes difficulties.<sup>16</sup>

So treating estimated teacher effects as accurate indicators of teacher effectiveness is problematic.

Much more needs to be known about these kinds of data and the properties of the models in different, commonly occurring situations before there can be agreement on whether it is generally possible to isolate teachers' contributions to student learning, and have the confidence to carry out actions on that basis.

Such widespread interest in VAMs, not to mention their adoption in a number of districts and states, has spurred a number of technical reviews.<sup>8</sup> These reviews paint a somewhat different picture. While acknowledging that VAMs are an important advance in applied measurement, the **reviewers all strongly caution against** their uncritical application, especially if the results are to have serious consequences for individuals or schools. Ultimately, the concerns are related to questions of proper test use.

8 R. Bock, R. Wolfe, and T. Fisher, *A Review and Analysis of the Tennessee Value-Added Assessment System* (Technical Report), Nashville, TN: Tennessee Office of Education Accountability, 1996; R. Meyer, "Value-Added Indicators of School Performance: A Primer," *Economics of Education Review*, 16, 183-301, 1997; H. Kupermintz, "Teacher Effects and Teacher Effectiveness: A Validity Investigation of the Tennessee Value Added Assessment System," *Educational Evaluation and Policy Analysis*, 25, 287-298, 2003; and McCaffrey et al., 2003."

## Plumbing, then political science

### Mass. vocational schools steering students to college

By Maria Sacchetti, Globe Staff | January 21, 2007

More vocational schools across Massachusetts are preparing their students for colleges, some as elite as MIT, shedding a long-held reputation for steering students only toward blue-collar professions.

Nearly half of the state's vocational students now enroll in a two- or four-year college after graduation, more than double the rate in 1990, according to the state. Some schools are urging more students to take the SAT and offering college-level advanced placement classes -- many in the last five years. Most schools, prodded by the state, are finding ways to teach high-level math and English in traditional shop classes.

Plumbing students at Assabet Valley Regional Technical High School work with trigonometry teachers to install pipes. At Lexington's Minuteman Regional High, carpentry students were assigned to read Thoreau when they built a replica of his Walden Pond cabin.

School officials say they are focusing more on college because the state and employers are demanding higher academic skills. Since 2003 all students have had to pass the MCAS test to graduate from high school, and federal and state officials say many new jobs in the trades will require college-level skills. Eighty-three Massachusetts school systems have vocational programs serving more than 63,000 students in grades nine to 12; more than a third of the programs are in separate vocational schools.

Jonathon Pasquale, an Assabet Valley senior specializing in plumbing, said he studies calculus, pre-engineering, and government one week and learns to unclog drains the next -- a typical schedule for a vocational school student. He is planning to attend a four-year state college in the fall.

"I had people who told me, 'Oh, don't go to a vocational school. . . . You're ruining your life,' " said Pasquale, who is considering studying criminal justice and having a second career in plumbing. "I made the best choice possible."

Vocational school officials concede that the strictly college bound might fare better in regular high schools where virtually all students are pushing for college. Vocational schools do not offer as many advanced placement classes as regular schools, and their test scores lag behind the best suburban schools. Many vocational schools still have few students taking the SAT, and some trades are more focused on college than others.

But vocational schools say they are raising test scores and promoting college, even as they hold on to mainstays such as carpentry and plumbing. They are adding programs or classes -- such as

pre-engineering or biotechnology -- from white-collar fields. Some schools, such as Minuteman, are calling their trades "majors" and quietly dropping "vocational" from the name of the school.

They are also raising state MCAS scores. At first, failure rates were high at many vocational schools, but now more than 90 percent of their students pass the test to graduate from high school.

In the past, vocational schools set their own curriculums and did not offer the higher-level math, reading, and writing found in regular high schools. Now, they are guided by state academic standards, and many are pushing even higher. Assabet Valley started advanced placement pre-engineering last year and added English and US government this year. Worcester Technical High School plans to start with advanced placement biology next fall. Minuteman offers a Latin class and touts its biotechnology and pre-engineering programs. Students must pass a math and science exam to get in to those programs.

Superintendent Michael Fitzpatrick, of Blackstone Valley Regional Vocational Technical High School in Upton, said students are demanding classes that will prepare them for college. He set a goal to increase SAT test-taking last year after he realized that students were flocking to MCAS tutoring sessions to earn higher scores and win free tuition to state universities. Last year the portion of seniors taking the SAT, used for admission at state universities, rose from 24 percent to 39 percent.

"It's amazing," said Fitzpatrick. "We're attracting a higher quality student because industry is saying that is the only student that we will reward with the job opportunities."

Kelsey Byers, 21, a senior at the Massachusetts Institute of Technology, said Minuteman's biotechnology program gave her an edge in college. Unlike most of her classmates, she went to a vocational school where she spent every other week in a real laboratory, learning to grow bacteria and make recombinant DNA.

"I was able to get an undergraduate [research] project my first summer because I knew my way around a lab," said the Sudbury resident who stunned middle school classmates by eschewing Lincoln-Sudbury Regional High. "I was lucky."

But it wasn't easy to shake the poor reputation of vocational schools during the college search, Byers said.

When she applied to Harvard, interviewers asked her whether she had read the classics. She told them she had read not one, but two, versions of "Antigone" and had written a paper comparing them. Then she mentioned her perfect SAT score.

"They basically stopped talking," she said. Harvard declined to comment. Byers said Harvard accepted her, but she chose MIT.

Ian Rooney, 17, an Assabet Valley senior, said he hoped his practical experience making electrical panels at a plant will impress college professors as much as the fact that he is taking advanced placement English. While working at a Bolton plant, he has noticed that some machine designs reflect the fact that engineers have never had to build them.

"I have the practical experience," said Rooney, who is heading to college with SAT scores that are higher than 600 in every category, including 730 in English. "I'll know not to make some stupid mistake."

Vocational schools are aggressively marketing the changes in glossy fliers sent to parents and at open houses across the state. Last week Minuteman's assistant superintendent, Thomas

Markham, stood before an auditorium of Needham parents and touted his school's hands-on learning philosophy, winning basketball team, and literary magazine.

More than 70 percent of all graduates last year headed to two-and-four year colleges, he said. He said the school's approach also works well with special education students -- who make up half the student body.

Afterward, like a college recruiter, he stood in the lobby at a table stocked with applications, Minuteman pens, and a DVD showing the school at work.

"I didn't realize such a high percentage went on to college," said Kathy Sussman , a mother of five who said she would consider the school.

The push is causing friction within the schools and with other cities and towns, which compete with vocational schools for students and the public funds that pay for their schooling.

Last school year Maynard sent letters to parents of incoming freshmen comparing Maynard's higher SAT scores to Assabet Valley's, and pointing out that Maynard's students were more likely to go to college. Maynard's superintendent said school officials were trying to inform parents and avoid losing students.

Jonathan Bruce , a School Committee member in Milford, one of several towns that send students to Blackstone Valley, praised the school, but he worried that college-bound students are crowding out students who want to learn a trade. Aspiring computer scientists can study anywhere, he said, but regular schools generally don't teach plumbing.

"I don't have a problem sending kids to college," said Bruce, a former pharmacist who became a builder. "I have a problem that we don't have enough seats for everybody to do what they want to do."

Vocational school teachers say they are pushing college as an option because every trade includes a wide range of possibilities. Cosmetology students might be content to cut hair in their kitchen -- or perhaps they would like to earn a business degree and run a salon. Worcester Technical High School's top two seniors are cosmetology students, and both are planning to attend a state university in the fall, school officials said.

"Like I tell the kids, we're not just pretty faces," said Arlene Thompson , Worcester's head of cosmetology, surrounded by the heads of mannequins with their hair styled into French twists. "We do have a brain."

## Vocational education programs are in need of repair

**Emphasis on college-prep academics leaves many students without job skills**

**By Peter Simon**

**Updated: 08/21/07 9:06 AM**

A statewide push for better academic test scores has left behind those students who are looking for careers in the building trades, the automotive industry and other fields that don't necessarily require a college degree.

Vocational education has been in steep decline here and throughout New York for a decade, leaving students with fewer opportunities and businesses struggling to find skilled workers.

**"We overreacted," said James P. Mazgajewski, superintendent of the Cheektowaga- Sloan School District. "The bent became preparing kids for college — period.** It's nice for him to be exposed to it, but it isn't necessary for a mechanic to quote Shakespeare while he's fixing my car."

State policymakers, who earlier crafted an academic reform plan with a tremendous emphasis on academics, say they will now try to rebuild vocational education.

In 1992, 41 percent of the state's public high school students took at least one vocational course. Last school year, just 25 percent were enrolled.

Many high school students, faced with tougher academic demands, are finding they don't have time in their schedules for vocational training.

And many of those who do manage to enroll get fewer hours of instruction and fewer course offerings to choose from than they had in the past.

That puts a tight squeeze on local businesses, which have long relied on vocational education programs and are now scrambling to fill well-paying jobs with qualified electricians, sheet-metal workers or plumbers.

"It's become more and more difficult to find qualified people," said Wayne Mertz, president of Goergen-Mackwirth Co., a metal fabrication company in Buffalo. "It was bad ten years ago, and it's even worse now."

In Buffalo, enrollment in vocational courses plummeted by 29.1 percent since 1999, to 5,430 students from 7,664. The city schools run their own vocational programs.

And vocational enrollment at Erie 1 Board of Cooperative Education Services fell 11.8 percent from 1999 to 2006, to 1,798 students from 2,039, according to the state Education Department. Erie 1 BOCES provides vocational programs to 20 Erie County school districts on a contract basis.

BOCES officials question those state numbers, saying their own audited statistics show enrollment remaining largely steady over the last five years. The state numbers, they said, exclude some of BOCES' vocational programs.

**The stress on academics went too far and crowded out vocational education, many school officials feel.**

**There is a growing perception that vocational education — now called career and technical education — has been given short shrift, and efforts are being made to improve it.** For example:

- The state Board of Regents is launching a study on expanding career and technical opportunities, and it hopes to come up with a plan within a year.

"The board is taking a very serious, renewed interest in this," said Robert M. Bennett, the Regents chancellor. **"It keeps popping up that school is not interesting, that it's not relevant enough. Kids don't see the connection between high school and a job."**

- In Buffalo, where the vocational program was once viewed as a national model, a \$30 million to \$40 million renovation of Burgard Vocational High School will give it state-of-the-art facilities for automotives, welding, building management and computer-aided drafting and machining.

And a course in forensic technology will be introduced at East High School next month, the first new career and technical education initiative in the Buffalo schools in at least eight years.

- Erie 1 BOCES is seeking to ease the crunch for career and technical students by offering academic credit for vocational courses that incorporate content in math, English or other subject areas. About 450 students last year took advantage of that option, which was allowed under a state regulation adopted in 2001.

The experience of Eric Smith, a senior at Lancaster High School, illustrates both the value and the difficulty of pursuing career and technical education.

To prepare for a two-year course in electrical systems at BOCES' Harkness Center, Eric skipped lunch as a sophomore to take a pre-engineering course at Lancaster High School and worked hard to stay on schedule with his Regents courses.

Now he spends an extra half-hour on a bus each day to shuttle between morning classes in Lancaster and afternoon instruction at the Harkness Center in Cheektowaga.

"I get a head start," said Eric, who plans to become an electrician. "I can skip over the first two years of an apprenticeship program."

But when Eric mentions BOCES to his classmates in Lancaster, he gets a less enthusiastic response.

"If you ask someone if they're going to sign up, they say they don't have enough room in their schedule," he said.

With vocational education in decline, educators said, school becomes more one-dimensional, and students have fewer opportunities to explore their interests and options for the future.



"The best part of my job is seeing kids find their niche," said Rosemary Conley, director of career development services at Erie 1 BOCES. "There are more 'oohs' and 'ahs' than you can imagine."

The problem has multiple causes.

**The state's rigorous Regents graduation requirements and the testing provisions of the federal No Child Left Behind Act have placed an enormous emphasis on academic achievement, especially in English and math. More time, money and attention were devoted to those subjects and less to career training.**

At the same time, severe budget cuts decimated Buffalo's vocational education program. Students used to take as many as 11 vocational classes during four years of high school and are now are limited to eight. Many vocational courses were eliminated.

"We started raising standards and adding more requirements, and something had to fall off the plate," said Superintendent James A. Williams, who vows to rebuild the career and technical program. "What that's done is push a certain percentage of our population out."

Some suburban districts, also facing fiscal troubles, became less willing to pay per-student tuition for students to take vocational courses at BOCES. And students who fell behind in their Regents graduation requirements didn't have the time to tackle vocational options.

In addition, the public perception of career and technical education can be far from favorable.

"People will pay a plumber \$125 to come out for 15 minutes, but they don't want their son or daughter to be a plumber," said Jim Klapp, Buffalo's director of vocational education before retiring in 2001. "It's a mentality that you're a secondclass citizen if you go to a vocational program."

There are positive notes in career and technical education. For example:

- Buffalo is considering the possibility of incorporating expanded vocational programs into plans for a longer school day and of having vocational education students rehabilitate city homes.
- Many suburban high schools are instituting career and technical programs in their own buildings so students don't have to travel to BOCES centers. Thirteen area high schools have pre-engineering programs and at least three have finance academies, said Jerald I. Wolfgang, director of the Erie County Tech Prep Consortium.
- In Lackawanna, the number of students taking BOCES courses jumped to 121 last year from 61 in 2001. "We want to do the right thing for kids," said Superintendent Paul Hashem. "If it costs us more money, it's worth it."
- While still offering traditional programs like auto mechanics, cosmetology and welding, career and technical education programs have been broadened to include courses in computer-aided design, television production, education and criminal justice.

But critics say that efforts to rebuild vocational education are minuscule compared with the damage that has already been done.

"I've seen a systematic dismantling of what I consider one of the most important and successful programs the Buffalo schools ever had," said Buffalo Teachers Federation President Philip Rumore.

[psimon@buffnews.com](mailto:psimon@buffnews.com)

## Stop shortfall of vocational workers, say educators

By MEGAN HAWKINS

Register Staff Writer

Iowans in the printing industry looked at their work force about seven years ago and saw too much gray hair.

So they launched a recruitment campaign that included money and equipment to revive printing classes at the Des Moines school district's Central Campus facility.

About 40 students per semester now learn to draw designs, make plates, mix inks, print, fold, assemble, trim, and prepare themselves for jobs in the industry.

"This is fairly unique, but the need is out there," said instructor Jeff Bock.

Experts say the demand for trained workers in Iowa has grown faster than the supply. They say the shortage will reach 150,000 within the next five years, which is forcing employers and educators to join hands in a way not seen since the 1980s.

**It seems like a problem with a ready-made solution: Enrollment in high school career programs is up, and community colleges are bursting at the seams.**

**But a decades-long emphasis on preparing all high school students for college has gutted or eradicated some key technical programs. Graduation requirements have also increased, which means less time for electives like auto mechanics. And the perception persists that trade courses are meant to fill blue-collar aspirations and little more.**

"The public perception is still, 'You're the vocational kids, you're the ones who aren't going to college,'" said Jason Kiker of the Association of Career and Technical Education in Arlington, Va.

Kiker said tech students "aren't the ones who are just looking like they're going to fail out of school, but they're the ones that are also designing the next level of bridge we're going to be crossing."

### **Boomers, economy may fuel shortages**

From welders to mechanics, travel agents to dental hygienists, U.S. workers trained with specific skills will be harder to find as baby boomers retire, studies show. The trend will likely be more pronounced in Iowa and other states with aging populations.

"You can't get your plumbing fixed in China. If your car breaks down, you can't send it to Japan," said Julie Rosin, assistant director at Central Campus. "These are local jobs."

The situation is not new, and it typically arises before and after major U.S. economic shifts.

Technical education in America can be traced to colonial apprenticeships - except then, the emphasis was reversed. The first education law passed in America specifically required masters

to teach apprentices academic as well as vocational skills. The topic was hot again in the early 1900s, when the country struggled to meet labor needs as the economy shifted from agriculture to industry.

After decades of education reform aimed mostly at better preparing kids for college, "there is increasing concern that the United States is not adequately preparing a growing pool of new workers ... for productive, successful roles in the work force," according to Howard Gordon's "The History and Growth of Vocational Education in America," written in 2002.

A similar sentiment drove education reform in China in the early 1990s, with an intense emphasis placed on job training in schools. In 2001, the government counted 17,770 vocational high schools and specialized skill schools.

The number of U.S. high school and college students in career and technical classes rose, too, to 15 million in 2003-04 from about 9 million four years earlier. In Iowa, the number grew to 206,896 in 2006, up from 149,585 four years earlier.

But that doesn't necessarily mean there are more carpenters and auto mechanics in the work force. The definition of career and technical education has evolved to include even business management and education jobs, according to the Iowa Department of Education.

### **Community colleges face budget cuts**

Nearly all vocational programs at Des Moines Area Community College -- the state's largest community college -- have waiting lists, DMACC President Rob Denson said.

But lawmakers will pass a state budget this spring that could include a \$11.4 million gap between what two-year schools say they need and what Gov. Chet Culver recommends. Republicans predict the Culver budget would trigger program cuts and higher tuition, both of which would close doors for many high school graduates who want technical careers.

Kiker, of the national tech education group, said that despite changing definitions of "tech ed," the focus should be on "forgotten middle jobs" that typically require at least two years of college or special certifications.

The problem is that well-trained students often see more appealing options in other states or at four-year schools.

Elle Ploessl-Dougherty, 18, a culinary arts student at Central Campus, said she had never thought about a "career and tech" occupation until a West Des Moines Valley High School teacher suggested she try the culinary program.

"When my teacher first said I should go to Central Campus, I thought, 'That's where all the bad kids go,'" she said, referring to Scavo alternative high school, which shares the building. "But now I'm here almost all day. It's for sure what I want to do."

### **Programs blend academics, training**

Boosting career and technical education will be costly. Equipment is expensive. Instructors, many of whom could make more money in the private sector, are difficult to find.

Small school districts have banded together and, in many cases, joined with community colleges to increase what's offered. An example is the Hunziker Center in Ames, a partnership between DMACC and several Story County school districts. It opened in 2006 and trains high school students during the day and college students at night.

DMACC's Denson said he thinks Iowa will see more partnership projects in the next few years but that private donations will be counted on in many cases. Educators say such efforts help blend academics and hands-on training.

"It used to be you could learn how to repair cars in a back alley. Today, it's all computer-driven. The diagnosis is done by computers, the repair work is done with the use of computers. Everything is at a higher level," Rosin said. "Included in that, you have to know the math, you have to know the science, you have to be able to read technical information."

At Central Campus, where more than 900 Des Moines-area students are in career and technical programs, half of the students simultaneously earn core credits and learn technical skills. Students in the fashion and textile art program, for example, get English credit for a project in which they interview clients, design wardrobes for them and create storyboards explaining how they can use the creations in daily life.

District officials continuously brainstorm with business leaders on class possibilities, such as programs in energy and wind resources, entrepreneurship, real estate and finance, insurance, and forensics, said Gary McClanahan, director of Central Campus.

### **Job shadowing is a key, educators say**

Late last year, Des Moines school officials abandoned plans to build a \$25 million career and technical center. They instead set aside \$14 million to renovate Central Campus. Superintendent Nancy Sebring nonetheless maintains that career and technical programs will be a priority.

"Technical education needs to be really on the front burner," she said. "Everybody is talking about work force needs now and in the future."

Although many businesses help schools with equipment or money, opportunities such as job shadows and internships are just as important, educators say.

Decades ago, the choice was clear: Go to college or learn a trade. Good, solid jobs required minimal training. Metro-area students could attend Des Moines Technical High School, which produced a generation of draftsmen, stenographers, mechanics and heating and cooling repairmen.

Tech closed in 1986. Those same jobs today often require more advanced skills or even a two-year degree.

Input from business leaders and faculty members at community colleges have helped reinvent several tech programs at Central Campus, Rosin said. The licensed practical nursing certificate program was turned into a nurse aide program to give students more career flexibility after graduation. Job shadowing is also part of the mix.

Partnerships also allow high school students to get a head start on a two-year degree. Every career and technical instructor at Central Campus is also a certified DMACC instructor, so students earn both high school and college credit. Leaders say they foresee a day when students can earn a two-year degree by the time they graduate from high school.

As for gaining the skills that eventually earn students paychecks, "it's all about on-the-job training," said Lowell Dudzinski, service manager at Charles Gabus Ford, where Central Campus auto students routinely do internships.

What high schools "teach those kids and what information they put in kids' hands is really great," he said. "But until they get out and actually work in the field, that's where the real learning happens.

"It's a lot more than nuts and bolts anymore."

Dudzinski said businesses should step up to help train students because such partnerships are key to cutting worker shortages.

"That's what's saving the industry," Dudzinski said.

**Reporter Megan Hawkins can be reached at (515) 284-8169 or [mehawkins@dmreq.com](mailto:mehawkins@dmreq.com)**