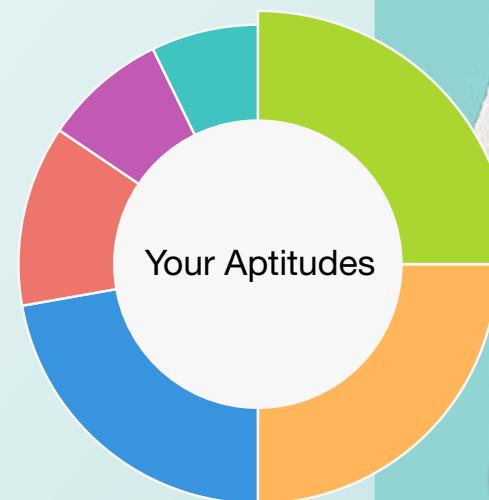


CTE holds the key to America's future

How strengthening career and technical education today ensures a competitive and resilient workforce for the future



CAREER AND TECHNICAL EDUCATION REPORT



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Foreword

A note to CTE leaders



The U.S. education system is producing diplomas, not readiness.

America's education system stands at a crossroads. For decades, K–12 schools have emphasized academic progression over career preparation. The result: **graduates who hold diplomas but often lack the skills, confidence, and direction to succeed** in college or the workforce. Employers cite gaps in critical thinking, communication, and self-management. Colleges see students without clear goals or the readiness for rigorous study. This readiness gap has become a workforce crisis that limits opportunity and weakens our economy.

At its core lies a disconnect between education and work. Credentials alone no longer open doors. Students need both technical knowledge and durable skills—collaboration, reliability, problem-solving—to succeed on any path. Yet too few gain early career exposure or apply their learning in real-world settings that connect school to future success.

The solution already exists: career and technical education (CTE). CTE bridges education and the workforce by linking classroom learning with hands-on experience, industry engagement, and pathways to college and careers. It equips students with the technical and transferable skills employers demand and gives them purpose in their learning. CTE isn't a niche program, **it's the foundation for preparing every student for what's next.**

For too long, CTE has been misunderstood as an “alternative.” That view is outdated. Every student benefits from connecting learning to life, whether their path leads to higher education, an apprenticeship, or the workforce. When done well, CTE isn't a detour. It's the bridge between education, careers, and lifelong opportunity.

At YouScience, we're committed to helping schools and CTE leaders close the gap between education and employment. We're investing in tools, data, and partnerships that align education with workforce needs. This report continues that mission; highlighting challenges, opportunities, and actions to ensure students graduate ready for both college and career.

Our goal is simple: connect every student to their aptitudes, to aligned pathways, to in-demand skills, and to real-world opportunities. When that happens, education doesn't end at graduation—it leads to purpose, prosperity, and a stronger workforce.

Edson Barton

Co-Founder and CEO, YouScience



Career and Technical Education Report

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About this report

Inside the data: What 400 CTE leaders say about the state of career readiness

This report draws on two powerful sources: a quantitative national survey of more than 400 CTE professionals across the country and qualitative interviews with CTE leaders and professionals. Together, we provide both a wide-angle view of the challenges and opportunities facing CTE and a close-up look at what's working in classrooms and districts today.

Survey respondents represent a cross-section of CTE leaders, including directors, coordinators, teachers, work-based learning leaders, principals, and administrators. They serve grades 6–12, with programs ranging from fewer than 250 students to more than 1,000. Their perspectives span from newcomers to veteran leaders with more than a decade of experience.





Executive summary

CTE at a crossroads: Confronting challenges, creating momentum

CTE leaders are redefining readiness as they work to connect education to real-world careers. Despite persistent barriers in awareness, alignment, and access, innovation and technology are paving the way to measurable progress.

Persistent challenges

Enrollment barriers

66% of students lack awareness of CTE options, 52% have limited access to exploration tools, and 57% of programs still face persistent bias.

Work-based learning hurdles

40% of CTE leaders struggle to secure employer partnerships due to scheduling, liability, and awareness challenges.

Workforce alignment gaps

Advisory boards and labor data are widely used, but many programs still can't keep pace with shifting industry demands.

Innovation driving change

Data-driven improvement

Nearly two-thirds of leaders still rely on spreadsheets—but new tools are helping streamline reporting and uncover ROI.

Aptitude exploration grows

76% of CTE leaders now see aptitude-based career exploration and earlier exposure as key to engaging students in high-demand fields.

Innovation in action

CTE leaders are using technology solutions like YouScience to close readiness gaps and drive long-term sustainability.

Together, these insights reveal where CTE stands today—and what it will take to unlock America's future workforce.





Challenge 1: Enrollment





Challenge 1: Enrollment

CTE faces enrollment challenges due to a lack of awareness and prevailing biases.

CTE leaders overwhelmingly point to enrollment as a top challenge. Sixty-six percent cite a lack of awareness about CTE opportunities, 57 percent identify persistent misperceptions and biases against CTE, and 52 percent note limited access to career exploration tools. **Without broader exposure, encouragement, and aptitude-based placement, too many students and parents continue to overlook CTE despite its relevance and opportunity.**

The problem is compounded by timing. Students often don't encounter CTE until high school, when their schedules are already locked and perceptions are harder to shift. Parents, meanwhile, continue to steer children toward college-only pathways, fearing that CTE work is "dirty, dark, dangerous," reinforcing outdated stereotypes. Our survey confirms this: 76% of CTE leaders said aptitude-based career exploration tools are critical for boosting enrollment, and 39% emphasized the importance of reaching students earlier through middle school exposure. Without these interventions, CTE enrollment may continue to lag, leaving students unaware of and unprepared for high-demand pathways.

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Challenge 1: Enrollment

Educators on the front lines are tackling these problems head-on with creative solutions:

“[We host a] parent night that highlights all of our programs and then the next day the 8th graders tour all of the CTE offerings.”

“[The] high school held a CTE expo where feeder middle schoolers explored all programs.”

“Introduce CTE courses to junior high school students in advance to develop interest.”

Together, these practices point to a core issue: **if students don't see and experience CTE early, they are less likely to consider it** when making decisions about high school courses and career pathways.

CTE leaders around the country are already tackling this challenge. They provide earlier and more personalized career discovery and actively engage parents and communities. Aptitude-driven tools help students see their talents in a new light, connecting them to career options they might otherwise overlook. Just as importantly, they counter parental bias by providing data that validates student potential.

Schools that strengthen ties with feeder middle schools and introduce exploration at earlier grade levels set the stage for higher enrollment and stronger program alignment.





Challenge 1: Enrollment

Turning challenges into solutions with YouScience

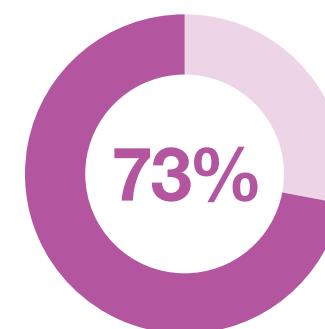
Educators who have adopted this approach see the difference. “YouScience is something that will help our kids in sixth and seventh grades to identify the areas where they have skills, talents, and interests, so we can deepen those as we go forward,” explained Jason Hass, Interim Superintendent and CTE and Secondary Curriculum Director at Scottsboro City Schools (AL).

Others echo the power of aptitude-based exploration to broaden horizons: “What YouScience does is it measures [students’ aptitudes]—what they’re good at and how they think—and then it introduces them to those careers that they don’t know yet, that they have never been exposed to,” said Marshall Ruetz, CTE & Tech Campus Coordinator at Waukegan High School (IL).

Aiken County, South Carolina, shows what this looks like in practice.

There, Dr. Christie Palladino uses YouScience data to send personalized invitations to students to join her biomedical sciences CTE program. The result has been a 73% increase in applicants, proof that when exploration is personalized and early, interest and enrollment follow.

With earlier exposure, personalized insights, and parent engagement, CTE can move past outdated perceptions. Every student can see the relevance of these pathways, connect their aptitudes to real opportunities, and step confidently into high school prepared for what’s ahead.



of student applications increased from personalized CTE program invitations





Challenge 2: Employer engagement





Challenge 2: Employer engagement

Engaging employers is a significant constraint and requires time, resources, and education about what CTE is and how it can benefit their business

CTE leaders consistently identify employer partnerships as one of their biggest hurdles. **Forty percent of survey respondents said securing employer engagement is a top challenge**, with specific barriers including employers not seeing the value of working with students (54%), difficulty aligning school schedules with employer needs (63%), and liability concerns (55%). Nearly half also pointed to a lack of employer awareness about CTE programs (49%). Without these connections, students miss out on internships, apprenticeships, and mentorships that bring classroom learning to life, and employers miss the chance to build a sustainable talent pipeline.

63%

of CTE leaders said it's difficult aligning school schedules with employer needs

55%

of CTE leaders said there are liability concerns

54%

of CTE leaders said employers don't see the value of working with students

49%

of CTE leaders pointed out a lack of employer awareness about CTE programs

40%

of CTE leaders said securing employer engagement is a top challenge





Challenge 2: Employer engagement

Educators reported tactics they've used to successfully integrate employer partnerships into their programs:



“Collaborate with local businesses to offer internships, apprenticeships, and job-shadowing opportunities.”



“Applied contextual learning to help students understand the relevance... to career opportunities and life goals.”



“Engage students in real industry projects.”

These perspectives underscore that employer engagement is achievable, **but it requires clear expectations, structured communication, and a long-term strategy.**

The path forward is clear: CTE programs need to build strong and intentional partnerships with local employers, create structured work-based learning opportunities like internships, apprenticeships, and co-ops, and proactively demonstrate the mutual value of student-employer engagement. Employers need to see that CTE students bring real skills, and schools need to create pathways that are easy for businesses to support.





Challenge 2: Employer engagement

Turning challenges into solutions with YouScience

In Jackson County, Alabama, the Mountain Lakes Chamber of Commerce partnered with Jackson County Schools and Scottsboro City Schools to close the gap between education and business needs. Employers in the area want highly trained, highly skilled employees who show initiative. By using YouScience, schools can identify students with the right aptitudes to succeed in these positions and place them on career pathways that build the skills employers demand.

As Nancy Griggs, Director of Talent Development and Workforce Solutions Initiative at the Chamber, explained: “Our students are our greatest resource to fill the talent pipeline of potential workers for business and industry in Jackson County. YouScience will be a game-changer in recruiting our students to in-demand careers.”

This same dynamic is happening across the country. Andrea Smith, Superintendent at North Point Educational Service Center (OH), noted how aptitude insights strengthen employer interest: “Businesses are hungry because they’re looking for this workforce. When they see students who show aptitude, they get excited. Now, they’re more interested in helping to get experiences arranged with students.”

At the classroom level, educators echo the value of career-connected learning. “Career-connected learning, or industry-infused education, is about taking ownership over your own education,” said Jason Knoell, Audio Production Instructor, Davis Catalyst Center (UT).

A best practice comes from [ElevateEdAZ, a Greater Phoenix Chamber of Commerce initiative that purchased YouScience for Mesa School District](#). The program has successfully placed students into H3 (high-demand, high-skill, high-wage) CTE pathway programs and work-based learning opportunities by aligning student aptitudes with employer needs.

With intentional strategies and the right tools, employer partnerships can move from a persistent barrier to a defining strength. By aligning CTE with real business needs and showing employers the untapped talent in their communities, schools can create more opportunities for students while ensuring industries gain the skilled workforce they need.





Challenge 3: Alignment with workforce





Challenge 3: Alignment with workforce

A persistent disconnect: schools and employers struggle to align goals, metrics, and timelines

CTE leaders know that programs only succeed if they reflect real-world needs. **Yet keeping curriculum aligned with workforce demand remains a persistent challenge both for educators and for industry partners.** One survey respondent shared the challenge, “Employers may have limited capacity or resources to support these initiatives, and aligning their needs with the program’s goals can require significant effort.”

Our survey found that 62% of leaders rely on industry advisory boards to stay current, 61% conduct labor market research, 59% participate in workforce development networks, and 54% work with industry partners to review curriculum and certification programs. Just over half (52%) maintain regular communication with local employers. These numbers highlight how complex the alignment challenge is. It requires multiple strategies working in tandem, and gaps in any of these areas can leave students underprepared for the jobs available in their region.

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Challenge 3: Alignment with workforce

Educators from the survey shared how they stay connected with the workforce:



“Involve companies in curriculum design to ensure relevance.”



“Offers short, stackable certificate courses.”



“Invite business people to share career paths.”

These perspectives point to a core issue: while many schools have mechanisms in place, too often they are inconsistent or underutilized. **Without deliberate alignment, students risk completing programs that don't translate into opportunities**, and employers continue to face shortages in high-demand fields.

The solution is clear: program alignment depends on structured systems that keep CTE connected to industry. That includes advisory boards with meaningful influence, employer-led certification design, regional workforce partnerships, and the use of labor market data to guide offerings. These practices don't just ensure compliance; they make sure students are building skills employers will recognize and reward.





Challenge 3: Alignment with workforce

Turning challenges into solutions with YouScience

In Alabama, a partnership between the Tuscaloosa County School System, Mercedes-Benz U.S. International, the nonprofit West Alabama Works, and YouScience launched a pilot program in [modern manufacturing at Brookwood High School](#). The initiative successfully connected students to in-demand skills and careers, and its impact was so strong that it has since been replicated in 24 schools across the state. This model shows how collaboration and aptitude-driven discovery can scale alignment with industry statewide.

CTE leaders are also aligning their pathway programs with workforce needs by embedding industry-recognized certifications. These credentials ensure students graduate with verified skills that employers demand, giving them a competitive edge in the job market.

“These IRCS give our students a competitive advantage to actually get into jobs. They’re resume-builders. Employers have told us directly: ‘If a student has this certification, I’ll hire them tomorrow,’” said Gabe Stotz, CTE Director, Yakima School District (WA).

Karen Edwards, a Health Science teacher and HOSA FHP Advisor at Chapin High School in South Carolina, emphasized that industry-recognized certifications serve as a critical bridge between education and workforce demands: “Industry-recognized certifications allow our students to be competitive in the workforce and more successful.”

By embedding employer input into curriculum and certification design, **CTE programs move beyond exposure to deliver true alignment**. Students graduate with credentials employers value, while industries gain confidence that CTE is a reliable pipeline for their future workforce.





Challenge 4: Measurement and outcomes





Challenge 4: Measurement and outcomes

Tracking outcomes and proving ROI is essential, but it depends on agreeing on metrics and having the right tools to measure impact

For CTE leaders, proving impact is as important as delivering it. Yet most programs remain stuck with outdated tools. Our survey found that **64% of CTE directors still rely on manual spreadsheets to track student outcomes**, even as they juggle state-mandated reporting (68%). This reliance on spreadsheets creates two major pain points: reporting is time-consuming and diverts attention away from students, and leaders struggle to demonstrate ROI to stakeholders, a challenge cited by 29% of respondents.

The solution is leveraging modernized data collection systems to replace manual processes, prioritize key metrics like enrollment, retention, certifications earned, graduation rates, and job placements, and use data to demonstrate ROI to stakeholders. Technology platforms don't just save time—they make it possible to connect outcomes directly to workforce needs, **proving that CTE is not an optional add-on but a critical driver of economic opportunity**.

68%

of CTE directors still rely on manual tracking even as they juggle state-mandated reporting

64%

of CTE directors still rely on manual spreadsheets to track student outcomes

29%

of CTE leaders said they struggle to demonstrate ROI to stakeholders





Challenge 4: Measurement and outcomes

Turning challenges into solutions with YouScience

Educators validate the power of data-driven reporting. “If we see that the data aligns, that students have the skills and the industry needs those skills for a program we don’t currently offer, we can begin shifting towards adding or modifying programs to keep them current and up-to-date with workforce demands,” said Jason Davidson, Superintendent, Jackson County Schools (AL).

[Yakima School District offers a powerful example of what's possible.](#)

By implementing YouScience® Industry Certifications, the district transformed its ability to measure student and program growth, validate teacher impact, and demonstrate program ROI. The results speak for themselves: more than 68,000 certifications delivered, up to \$500,000 in college tuition savings for students,

and a system the district now considers essential for both accountability and student success. Eric Franz, Instructional Technology CTE Support Specialist, Yakima School District noted: “We had no evidence-driven data to show growth in our CTE classes. YouScience allowed us to have the data to move forward.”

By modernizing systems and embracing data-driven tools, CTE leaders can finally move past manual processes and make a stronger case for funding, expansion, and long-term sustainability. The outcome is not just compliance, but confidence: clear proof that CTE prepares students with the skills, certifications, and readiness employers demand.





Challenge 5: Equity and access gaps





Challenge 5: Equity and access gaps

When access to CTE isn't equal, opportunity gaps widen

Despite the promise of CTE, access is far from equal. **Students from underrepresented groups or lower-income households often have fewer opportunities to participate** in high-quality CTE programs, or they're steered toward pathways that don't reflect their full potential. Survey results confirm these concerns: 59% of CTE leaders say outreach to underrepresented groups is essential, 54% prioritize providing financial support or scholarships, and more than half focus on flexible scheduling (53%) and accommodations (54%). Half (50%) also use aptitude-based assessments to broaden exposure, underscoring how critical discovery tools are to ensuring equity.

Educators shared how inequities show up in practice: some students never see the range of options available, others are tracked away from rigorous programs, and rural or lower-income students often lack exposure altogether. Together, these realities highlight a troubling truth: **unless CTE leaders address access gaps directly, CTE risks reinforcing inequities instead of closing them.**

Equitable access requires intentional placement into programs that match student talents and interests, supported by aptitude-based discovery tools that cut through bias. Schools must also engage parents and communities to counter outdated perceptions and ensure all students see CTE as a pathway for them.

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of CTE leaders use aptitude-based assessments to broaden exposure





Challenge 5: Equity and access gaps

Turning challenges into solutions with YouScience

Educators affirm the power of this approach. “One of the things that excites me most is that your aptitude is not determined by the color of your skin, gender, sexuality, or any other demographic that may be used to differentiate you as a person,” said Karla Clark, CC4A/STEAM Project Manager, Southern Oregon Education Service District (OR).

Andrea Smith, Superintendent at North Point ESC (OH), reinforced the regional challenge: “It’s our job in our region to help students understand what they can be. If they come from rural backgrounds, we want them to know what exists out there for them.”

Former student [Brianna Heim](#) offered the most personal validation:

“

“My life motto is do what they think you can’t do. So many people think that I’m not capable because of my disability. I love proving them wrong. YouScience has helped prove that I am truly capable of so much.”





Challenge 5: Equity and access gaps

Turning challenges into solutions with YouScience

The [2024 Female Students and STEM Report](#) highlights a critical gap: **female students often have the aptitudes for in-demand STEM careers but lack the corresponding interest.** Exposure makes the difference. Take the story of Maylyn Mann, a Georgia high school student who once planned to become a lawyer.

After completing YouScience® Aptitude & Career Discovery, she uncovered talents for STEM fields she hadn't considered before. Guided by her results, she shifted her focus and went on to pursue a degree in public health with a minor in computer science at Tennessee State University.

Along the way, Maylyn used her YouScience profile to strengthen scholarship applications, ultimately earning more than \$200,000 in awards. Her journey shows how equitable exposure doesn't just reveal opportunity, it gives students the confidence to seize it.

By centering aptitude discovery and removing barriers, **CTE leaders can ensure every student has access to pathways that match their potential.** Equity in CTE is not only possible; it is essential to building a workforce that reflects and serves every community.





Every student connected and ready

To secure America's future workforce, CTE must move from optional to essential

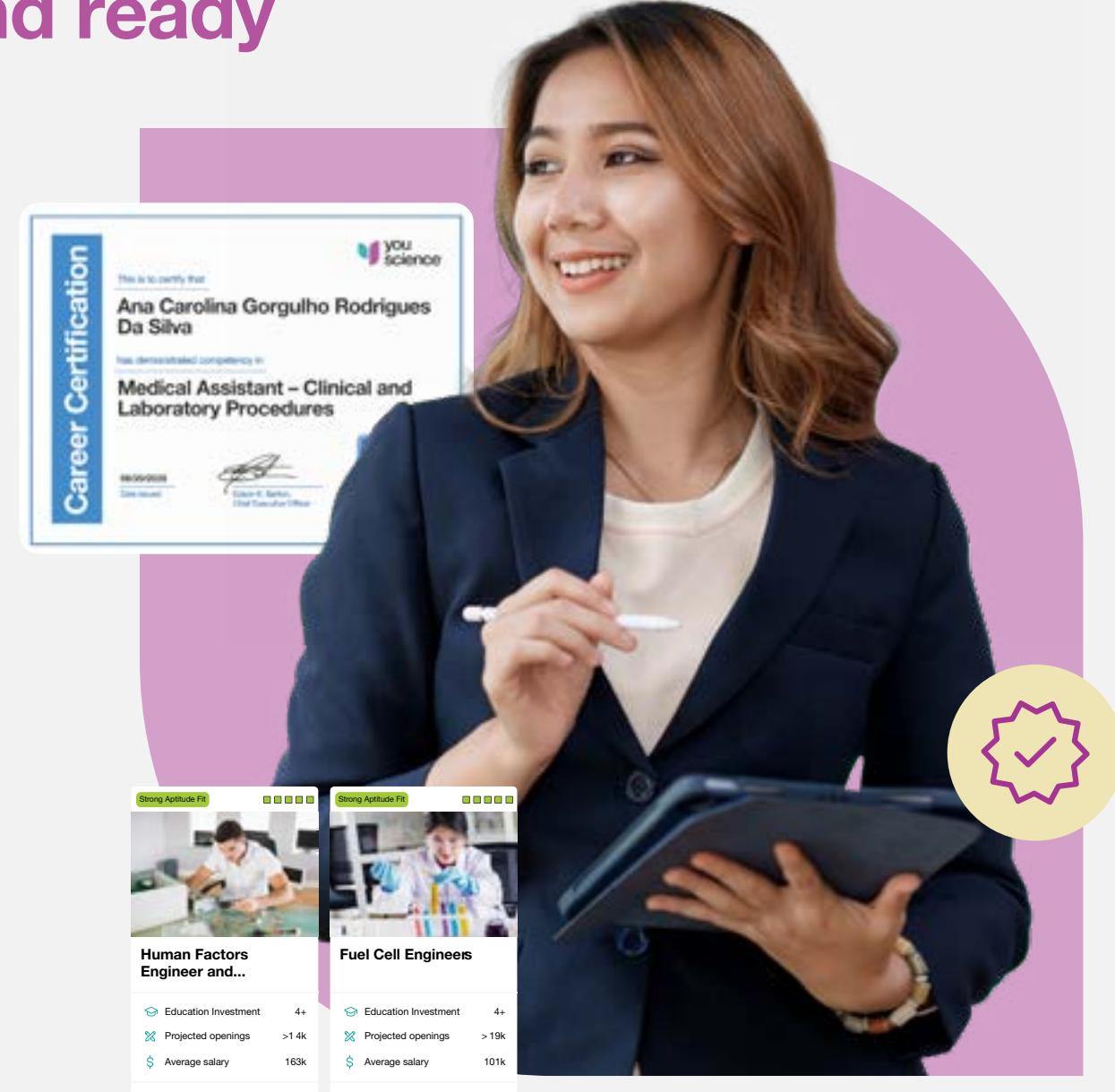
America cannot afford for CTE to remain underutilized. The stakes are too high for students, for employers, and for our nation's competitiveness. The evidence in this report is clear: when students are given earlier exposure, real opportunities to connect with employers, industry-aligned pathways, equitable access, and modern systems to prove outcomes, they thrive.

And when CTE thrives, the workforce thrives.

Progress will not come from piecemeal efforts or isolated success stories. It requires bold investment, stronger partnerships, and a collective commitment to reframe readiness. CTE is not a side program—it is the bridge between education and economic strength.

The path forward is within reach. Schools that embrace aptitude-based college and career readiness, employers that lean into partnerships, and policymakers that prioritize equity can create a system where readiness is the expectation, not the exception.

The future of education is not about choosing between college or career. It's about ensuring that every student graduates with confidence, clarity, and purpose. **Every student, connected to their career and ready for life.**





About YouScience

YouScience® is the leading education technology company dedicated to empowering individuals with the data and credentials needed to succeed in school, career, and life. Its award-winning platform, **YouScience® Brightpath**, is the only College & Career Readiness solution built for both compliance and impact, powered by scientifically backed aptitude discovery, industry-recognized certifications, and meaningful career connections.

By leveraging research, artificial intelligence, and industry collaboration, YouScience helps individuals uncover their unique talents, validate their skills, and connect with in-demand educational and career pathways. YouScience currently serves more than 13,400 educational institutions and millions of users nationwide.

With Brightpath, every student is connected and ready.

