Perceptions of Career and Technical Education in Missouri

Findings from the Department of Elementary and Secondary Education's CTE Survey

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Executive Summary

Adult survey respondents did not have a negative perception of CTE, but they perceived that one exists

- More than 90 percent of adult respondents agreed that CTE is just as important as subjects like Math, English, Science and Social Studies and that CTE can be a pathway into college for some students.

- However, 57 percent of adults agreed that CTE tends to focus on students who probably will not go to college and over 47 percent of adults agreed that CTE students are not as respected as those who take more traditional classes.

Student perceptions of CTE are not fully formed

- Assumptions about negative perceptions of CTE are more commonly held by adults, but rather than having negative perceptions students are more likely to lack knowledge about CTE-related careers, certifications, and educational opportunities.
    - > More than 25 percent of students do not know if they have an opportunity to earn an Industry Recognized Credential through CTE, and more than 30 percent of students do not know if community and technical colleges agree to transfer CTE credits.

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- Students do not always equate CTE with college and this lack of awareness may explain why many students prioritize college prep efforts.
  - > 72 percent of students agreed that the most important thing schools should teach are courses that meet college entrance requirements.

Exposure to CTE improves student awareness of CTE-related opportunities

- More than a third of non-CTE students lack knowledge of CTE careers, post-secondary education opportunities and certifications.

- The information gap between CTE students and non-CTE students is due more to a lack of knowledge than a negative perception.

- A significant percentage of CTE students are unaware of opportunities to transfer CTE credits to community and technical colleges or earn Industry Recognized Credentials.
  - > Non-CTE students are even less likely to be aware of these opportunities.

Parents and educators need greater knowledge of about CTE-related education and certification opportunities

- More than 70 percent of parents thought that CTE programs engaged students and were good for their child, but more than 50 percent of parents were unaware of opportunities to transfer CTE credits to community and technical colleges and more than 40 percent did not know about opportunities to earn Industry Recognized Credentials.

- Almost 90 percent of educators agree that CTE exposure should begin before high school, but many K-8 teachers lack CTE knowledge.
  - > Roughly 1 in 4 K-8 teachers did not know about individual career and academic plans, CTE certificates, and if their school offered work-based learning opportunities.
  - > Counselors are repeatedly highlighted as an important link between students, parents, and CTE programs.

Businesses value CTE certifications and credentials, but need stronger connections to CTE programs

- Over 85 percent of business leaders believed that CTE classes teach students transferrable skills that will serve them well in this economy.

- More than 90 percent of business leaders agree that local employers should partner with schools to provide students with real-world education and training experiences.

- Barely 50 percent of businesses indicate they currently have a working relationship with a CTE career center or CTE program.

- Only 40 percent of business leaders indicated that their company offers students in Grades 7-12 internships and work-based learning opportunities.

- Among business leaders there are mixed perceptions about the responsiveness and flexibility of CTE programs.

Accessibility to CTE programs is a broad issue impacting both students and school districts
- Capacity issues related to district funding and program size were noted as key impediments to participation in CTE programs.

- Core academic requirements for graduation and admission to post-secondary institutions are hampering the ability of students enroll in CTE programs.
  - > A number of students and parents report that they (or their students) do not have the time in their schedules to complete their core courses and partici-pate in the electives and extracurricular programs of their choosing.

Introduction

Over the past forty years, the American workplace has changed significantly as it transitions into a post-industrial economy. Jobs that once formed the backbone of American industry—production jobs in manufacturing industries—are now fewer in number and different in nature.[1] The knowledge and skills required for these and many other occupations is also dramatically changing. Across all occupations there is an increased expectation of digital skills, but also a consistent demand for additional, highly specialized skills and their associated credentials. These changes have affected all types of occupations, but have been particularly acute in fast changing industries such as manufacturing.[2] As a result, the paths to enter many careers are increasingly complex and job seekers must continually expand their basic skill sets.

Given the changing economy, students and job seekers face a difficult time "navigating the school-to-career transition," particularly as the number of "colleges, majors and career fields has grown rapidly."[3] This leads to situations where students "make career choices based on scant information,"[4]—with students being steered towards the pursuit of four-year degrees, primarily because it is a known pathway.[5] Similarly, many other workers remain in low-skill jobs, in part because they lack knowledge about the educational opportunities that will help them move into more middle- and high-skill work. This confusion can lead to greater career polarization, whereby some students and workers prosper, but many others experience more limited career growth and earnings potential. Over the long term, these trends lead to growing "dissatisfaction with career choices and outcomes," particularly as people become mired in static jobs and careers of limited interest to them.[6]

While students face challenges navigating the changing terrain of credentials, jobs, and careers, employers regularly report shortages of qualified applicants for their open positions.[7] These shortages are particularly acute in middle-skill occupations that have been historically connected to vocational education programs.

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[1] For example, at its peak in 1979, manufacturing accounted for almost 20 million jobs or 22 percent of national employment. Today, manufacturing only accounts for 12.6 million jobs, or 9 percent of national employment (Georgetown University Center on Education and the Workforce 2019, 1).

[2] A recent report from Burning Glass Technologies that examined the importance of digital skills in the United Kingdom found that "digital skills are near-universal requirements," with over 75 percent of jobs at all skill levels (low-, middle-, and high skill roles) requesting baseline digital skills such as Microsoft Office or other productivity software tools (Nania et. al. 2019, 8). At the same time, the Georgetown University Center on Education and Workforce has noted that while the number of production workers with a high school degree or less has dropped, an increasing number of production workers have at least some postsecondary education, including associate's degrees, postsecondary certificates, and bachelor's degrees (Georgetown University Center on Education and the Workforce 2019, 3).

[3] Hanson and Gulish 2016, 7.

[4] Feller 2003, 262. This sentiment was echoed in 2017 in the report *Career Pathways: Five Ways to Connect College and Careers* from the Georgetown University Center on Education and the Workforce. In that report, they note that "many learners, especially those with little or no work experience, often make life-altering decisions under a cloud of uncertainty about how their postsecondary choices will affect their employment outcomes, the path needed to reach those outcomes, the likelihood of success, and whether their career will line up with their abilities, preferences, and interests" (Georgetown University Center on Education and the Workforce 2017, 11).

[5] For example, the Washington State Auditor reported on this during an audit conducted of the state's Career and Technical Education System. In their findings, they noted that "many children and parents are unaware of the options available to them," ultimately leading them to be steered towards "four-year university degrees rather than CTE-related careers" (Office of the Washington State Auditor 2017, 18).

[6] Feller 2003, 262.

[7] There are several recent examples of this concern echoed in reports about Missouri's workforce. 41 percent of employers in 2018's State of the St. Louis Workforce reported that a "shortage of workers with knowledge and skills" was their

These careers once required only a high school degree, but workers now increasingly need some kind of postsecondary credentials—often less than a four-year college degree.[8] The allure of the four-year degree remains for many students and job seekers because they believe these jobs provide the best opportunities for good paying jobs and careers.

In response to the changing nature of the workplace, many Career and Technical Education (CTE) programs are evolving to meet the changing needs of employers. Once viewed as the province of "low-level courses, job training, and single electives," CTE has replaced vocational education with "academically rigorous, integrated, and sequenced programs of study that align with and lead to postsecondary education."[9] Many CTE programs have built connections with employers, industry groups and postsecondary educational institutions, enabling students to "earn dual enrollment credits, industry-sponsored certificates, and technical endorsements on high school diplomas."[10] As CTE programs evolve, they enable partici-pating students to immediately move into valuable—and growing—middle-skill careers.

> *In total, over 243,000 Missourians participated in CTE courses during the 2017-18 academic year.[11]*

In Missouri, CTE incorporates many unique actors. Across the state, there are 57 area career centers, 444 comprehensive high schools, the State Technical College of Missouri, 12 community college districts, and seven four-year institutions that deliver some kind of CTE. Statewide, CTE covers a broad range of disciplines that includes programs in agriculture, business, health sciences, family and consumer sciences/human services, marketing, skilled technical sciences, and technology and engineering education. For the 2017-2018 academic year, at least 65 percent of all Missouri high school students took at least one CTE course or participated in CTE programs. In total, over 243,000 Missourians participated in CTE courses during the 2017-18 academic year.[11]

Despite the growing evidence of the value of pursuing CTE opportunities and its prevalence across the state, the persistent perceptions of past vocational programs still impact current CTE efforts. In a March 2013 report from the American Institutes for Research and funded by the U.S. Department of Education, the authors found that one of the biggest challenges to growing CTE programs is these programs' longstanding image.[12] Therefore, addressing these perceptions will be an important step for growing CTE classes and programs.

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biggest barrier to expanding employment (St. Louis Community College 2018, 4). This was slightly down from 2017, where 52 percent of employers cited the same issue as their primary concern (St. Louis Community College 2017, 4). Similar information was

echoed in the Missouri Chamber of Commerce's Workforce 2030: A Call to Action, where they quote a CEO who said "we can-not find enough workers with the right skills" (Missouri Chamber of Commerce 2018, 3).

[8] One example of these stories found in the popular press comes from an April 25, 2018 story from NPR highlighting the prev-alence of high-paying jobs in the skilled trades that sit empty while students line up for universities and other four-year degree granting institutions. For more information, see Gross & Marcus 2018.

[9] Brand et. al. 2013, 2.

[10] Ibid.

[11] Missouri Department of Elementary and Secondary Education 2018. Found online at https://dese.mo.gov/sites/default/files/cte-mce-fact-sheet.pdf.

[12] Notably, the authors state that "CTE continues to face challenges with regard to its image as a low-level vocational education track that often leads to a low-skill job with no intermediate postsecondary education." They note that this

About the survey and this report

During the fall of 2018, the Missouri Department of Elementary and Secondary Education's (DESE) CTE Advisory Council constructed a survey designed to gauge perceptions of Career and Technical Education in Missouri.[13] This survey sought to better understand how Missourians view CTE. The CTE Advisory Council will use the survey results to inform a communication and marketing campaign—the success of which is dependent on, "...a clear understanding of audience members' pre-existing opinions—be they rightly or wrongly held."[14]

The survey was prepared by the Advisory Council and DESE staff, in conjunction with stakeholders and other partners.[15] This group reviewed surveys from neighboring states as well as the Association for Career and Technical Education (ACTE). Those surveys then guided the development of a Missouri-specific survey. Once developed, the survey was sent electronically to educators, parents, students, and other stakeholders throughout the state and remained open during the first quarter of 2019. Responses were collected via Survey Monkey and aggregated by DESE staff.[16]

Once the survey closed, DESE staff gave the survey results to the University of Missouri Extension's Labor and Workforce Development (LWD) Program for analysis. The LWD program matched zip codes with corresponding Missouri counties, allowing us to better comprehend the geographic reach of the survey. We also broke the survey responses apart by type of respondent (e.g., student, parent, educator, business leader), allowing us to independently analyze the different sections of the survey. Furthermore, the survey asked questions that gauged levels of intensity, for the purposes of this analysis we tended to group the answers into responses of "Agree" and "Disagree."[17]

The survey was constructed with a series of questions asked of all respondents. These questions focused on general perceptions of CTE, as well as asking for general demographic information. After the respondent identified themselves as a student, educator, parent, or business leader, they were directed to a series of additional questions that focus specifically on CTE issues relevant to those populations. At the conclusion of the survey, there was a space for respondents to write comments.

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continued challenge "continues to impact students' and parents' decisions about high school course taking and career pathways" (Brand et. al. 2013, 7).

[13] The CTE Advisory Council was signed into law on August 28, 2016. One of the first actions of this Advisory Council was to form a CTE Marketing Taskforce, charged with changing perceptions of CTE in Missouri. The work of this committee was included in the Advisory Council's strategic plan, which was approved in October 2018, and contains goals related to Student Achievement; Business and Financial Operations; and Marketing, Image and Partnership.

[14] Missouri Department of Elementary and Secondary Education, *"Changing Perceptions: Findings and Recommendations from the Missouri Career and Technical Education Advisory Council's Marketing Taskforce",* April 2018, p. 11.

[15] The other partners included staff from the Missouri Department of Higher Education, the Department of Economic Development, and the Division of Workforce Development.

[16] The survey design process did not discuss the overall number of responses, types of responses by category (student, parent, educator, or business leader) or geographic makeup of responses that would be necessary in order to fully ensure that an adequate sample was received. Consequently, we cannot fully ascertain whether or not this is a representative sample of Missourians nor can we adequately discern whether or not a bias exists in the responses. However, given the process, we suspect that respondents were more likely have favorable views of Career and Technical Education than you might find through a blind sample process.

[17] The survey results were also tested to gauge their statistical significance. Unless otherwise noted, the results that we discuss in this report are statistically significant at the 99th percentile. There are likely some other trends that might be worth exploring in the survey, but unless we were able to verify that they were statistically significant we did not report them as part of this analysis.

This report presents the key results of the survey. It initially discusses the breadth of the survey and then shifts into a discussion of some key quantitative findings. These key results are focused on the perceptions that adults and students have about CTE as well as highlighting their differences. These discussions are based on the questions asked of all survey participants. The report then shifts into discussion of the perceptions of particular subsets of the population, including parents, educators, and business leaders. Several notable qualitative findings are found after the quantitative discussion and are followed by overall conclusions of the report.

The survey received responses from every county in Missouri

As shown in Figure 1, a total of 9,654 people responded to this survey; 6,735 of the respondents identified themselves in roles that we grouped together as adults, while 2,919 respondents identified themselves as students. Of the adult respondents, the vast majority (4,003) identified themselves as Educators; 1,639 identified themselves as Parents and Guardians; and 445 respondents identified themselves as Business Leaders. The remaining 602 adult responses are classified as Other, which mostly includes people in a variety of education related fields.

Figure 1. Survey Respondents by Type

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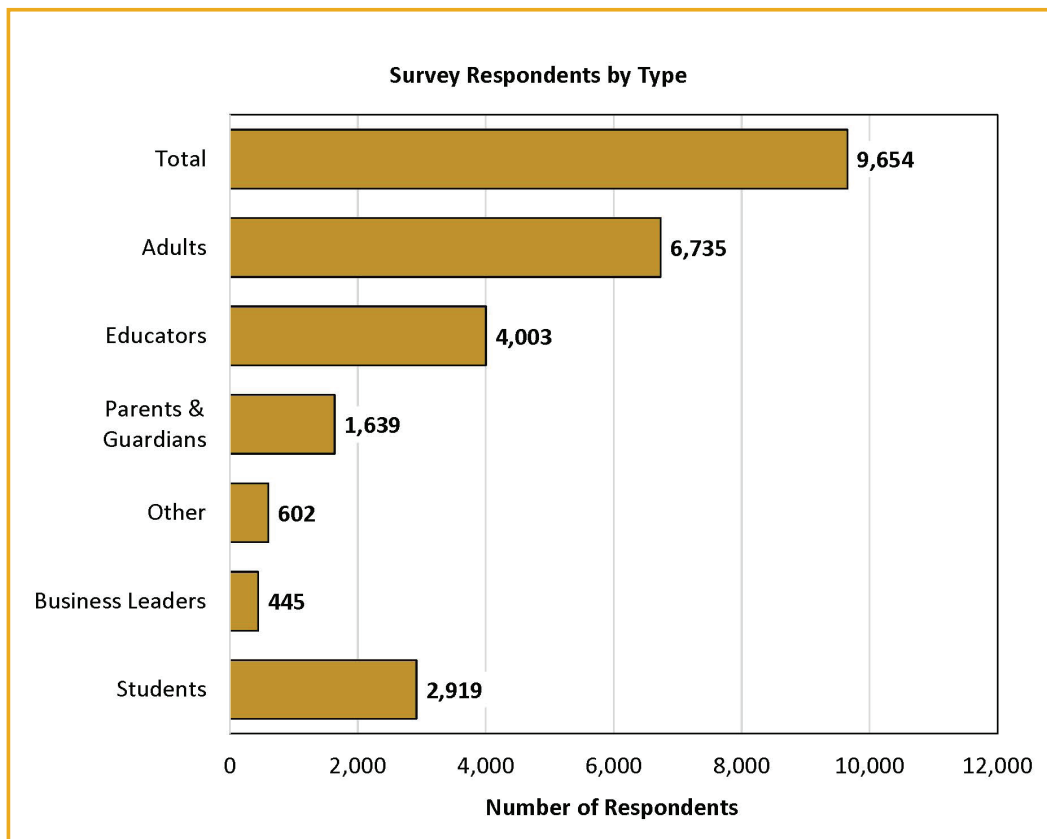
[18] It should be noted that the survey design did not allow respondents to select more than one category for their type. As a result, it is possible that some adults fit into multiple categories (e.g., educator and parent), or some respondents might have completed the survey more than once from the perspective of an educator and then again as a parent.

Zip code information was asked of adult participants, and Figure 2 shows that the survey received responses from every Missouri county. Of the 6,735 adult respondents, 52.5 percent of them identify their geographic location as being part of a metropolitan county; —37.4 percent of respondents indicate that they are from a non-metropolitan Missouri county.[19]

Figure 2. CTE Perceptions Survey Respondents by County (2019)
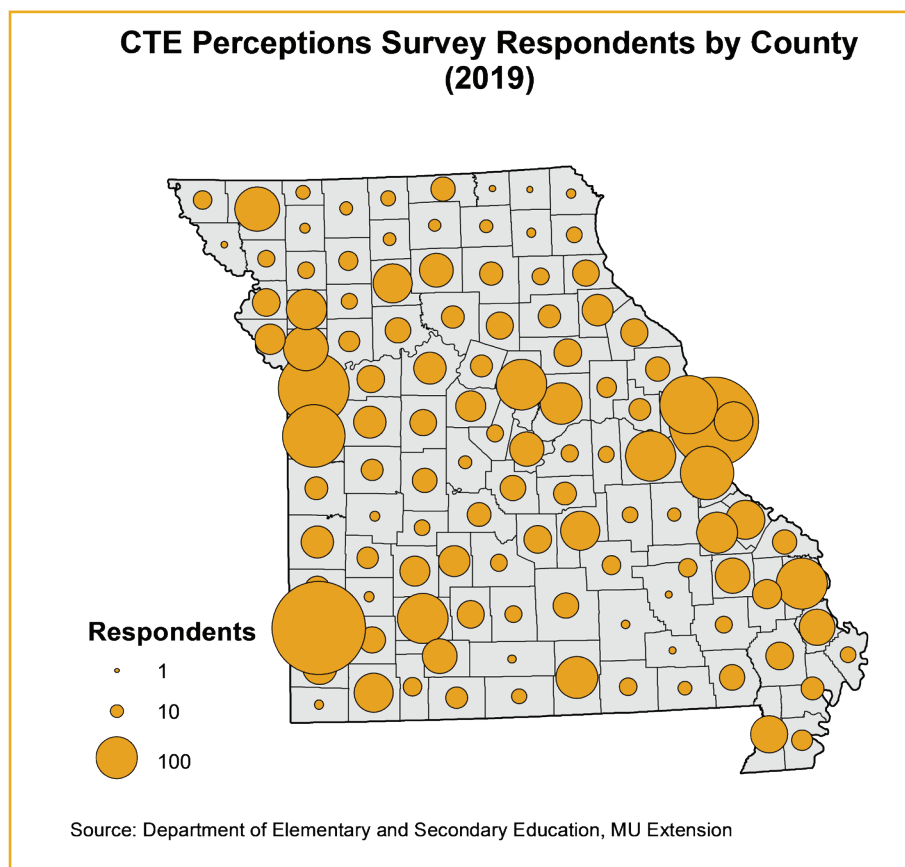
As a result, the state's metro areas are somewhat underrepresented, as approximately 75 percent of the state's population lives in metro counties.[20] Another 9.1 percent of respondents left this question blank; and 1.1 percent of respondents were from outside of Missouri (IL, KS, and AR).

The highest number of survey responses come from Jasper County, with 488 responses. St. Louis County has the second highest number of responses, with 449 people responding to the survey. Other counties with a significant numbers of responses include Jackson, Jefferson, Cass, Cape Girardeau, St. Charles, Franklin, Douglas, Callaway, and Christian counties.[21]

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[19] The counties in Missouri defined as metropolitan counties include Andrew, Bates, Bollinger, Boone, Buchanan, Caldwell, Callaway, Cape Girardeau, Cass, Christian, Clay, Clinton, Cole, Dallas, DeKalb, Franklin, Greene, Jackson, Jasper, Jefferson, Lafayette, Lincoln, McDonald, Moniteau, Newton, Osage, Platte, Polk, Ray, St. Charles, St. Louis, St. Louis City, Warren, and Webster.
[20] US Census Bureau, Population and Housing Estimates Program, v2018.
[21] See Appendix A for a listing of the number of responses by county.

Adult survey respondents did not have a negative connotation of CTE, but they perceive that one exists

The survey results demonstrate that adult respondents had an overwhelmingly positive impression of CTE. This positive impression is reflected throughout the survey, and is captured best by the three questions highlighted in Figure 3.

For instance, 96.5 percent of adult respondents agree with the statement that "CTE can be a pathway into college for some students", while 91.4 percent agree with the view that "CTE is just as important as subjects such as Math, English, Science, and Social Studies." By contrast, only 16.6 percent of respondents agree with the statement "CTE-related professions pay less than fields requiring a four-year degree." Moreover, these positive perceptions were consistent across all types of adult respondents be they parents, educators, or business leaders.

Figure 3. Adult Respondents that Agree with Statement
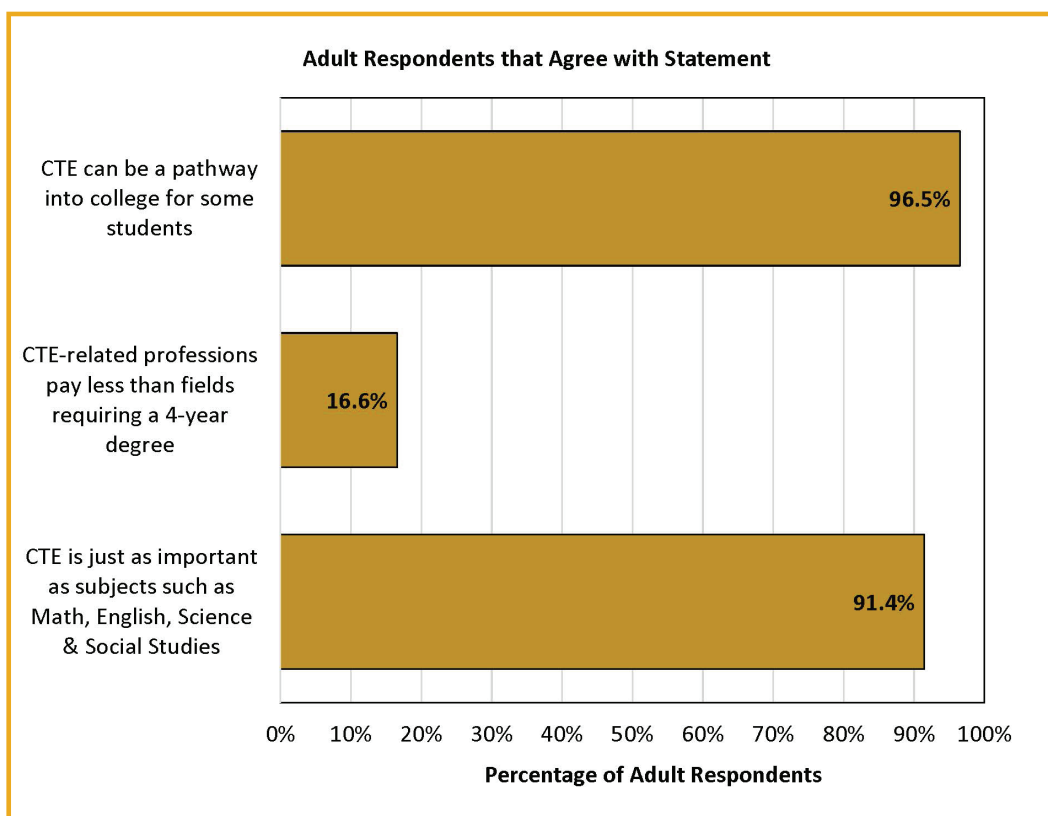
Although the adult respondents have a positive impression of CTE, several questions demonstrate that they believe a negative perception of CTE does exist amongst the larger population. These concerns are not overwhelming, particularly when compared with the positive impression that adult survey respondents have of CTE, but they manifest themselves in another series of questions found in Figure 4 as well as in comments submitted at the conclusion of the survey. For example, 36.6 percent of adult survey participants agreed with the statement that "The name 'CTE Education' has a negative connotation." Over half (56.8 percent) of the same group of respondents agreed with

the statement that "CTE tends to focus on students who probably won't go to college." And nearly half (47.2 percent) agree with the statement that "Students in CTE programs are as respected as those who take more traditional classes."

Figure 4. Respondents that Agree with Statement
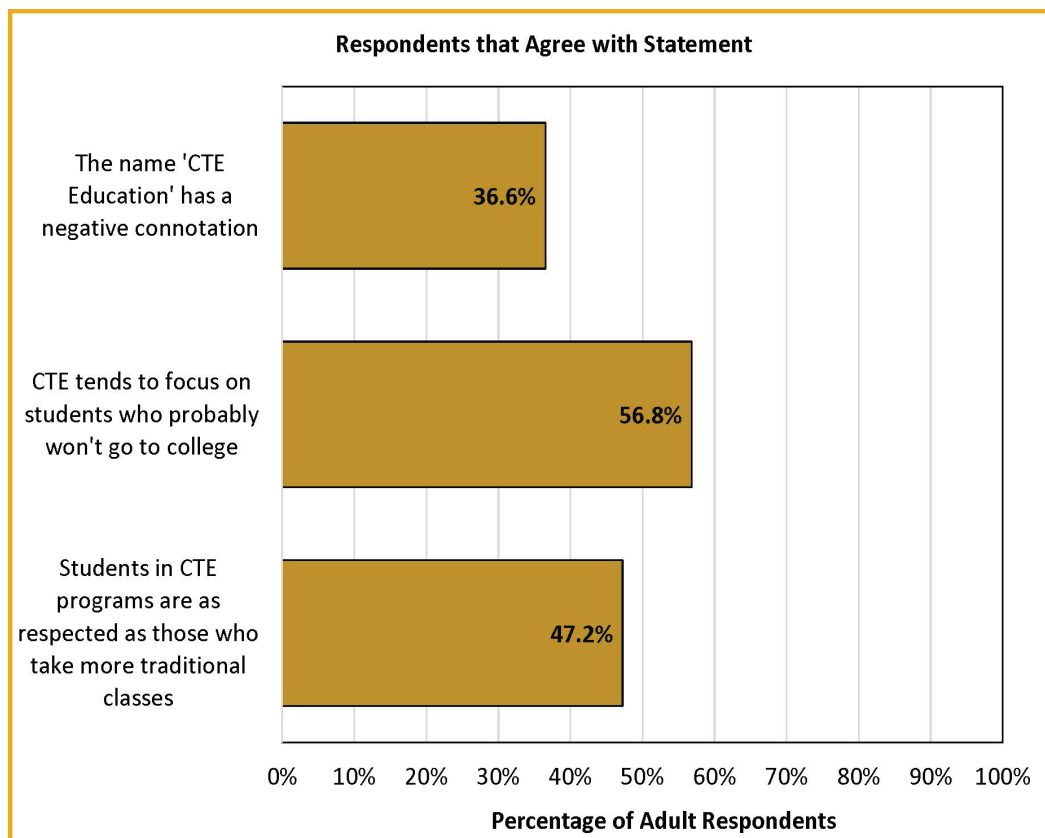
The responses to these questions demonstrate that many adults still believe that CTE has a negative perception amongst the general population. Perhaps the most notable and concerning response is that a majority of adults who responded agree with the view that "CTE tends to focus on students who probably won't go to college." In a society where a college education has been promoted as a pathway to economic stability and success, the persistent view that CTE is distinct from college is problematic.

Student perceptions of CTE are not fully formed

Student respondents were less likely to perceive a negative connotation for CTE than adults. Student survey respondents were also more likely to lack knowledge about CTE and the career pathways and opportunities available through these educational programs. This presents an opportunity for people to influence the next generation entering the workforce about the possibilities available through these educational pathways, as well as overcoming traditional understandings of what CTE entails.

The responses to several survey questions demonstrate how students hold fewer negative perceptions about CTE than adults. Figure 5 shows that over 60 percent of student respondents believed that CTE students are as respected as those who take

more traditional classes, whereas only 47 percent of adult respondents agreed with the same statement. By contrast, 46 percent of adults perceived CTE students as being less respected, a figure more than twice as much as student respondents (21.3 percent).

Figure 5. CTE students are as respected as those who take more traditional classes
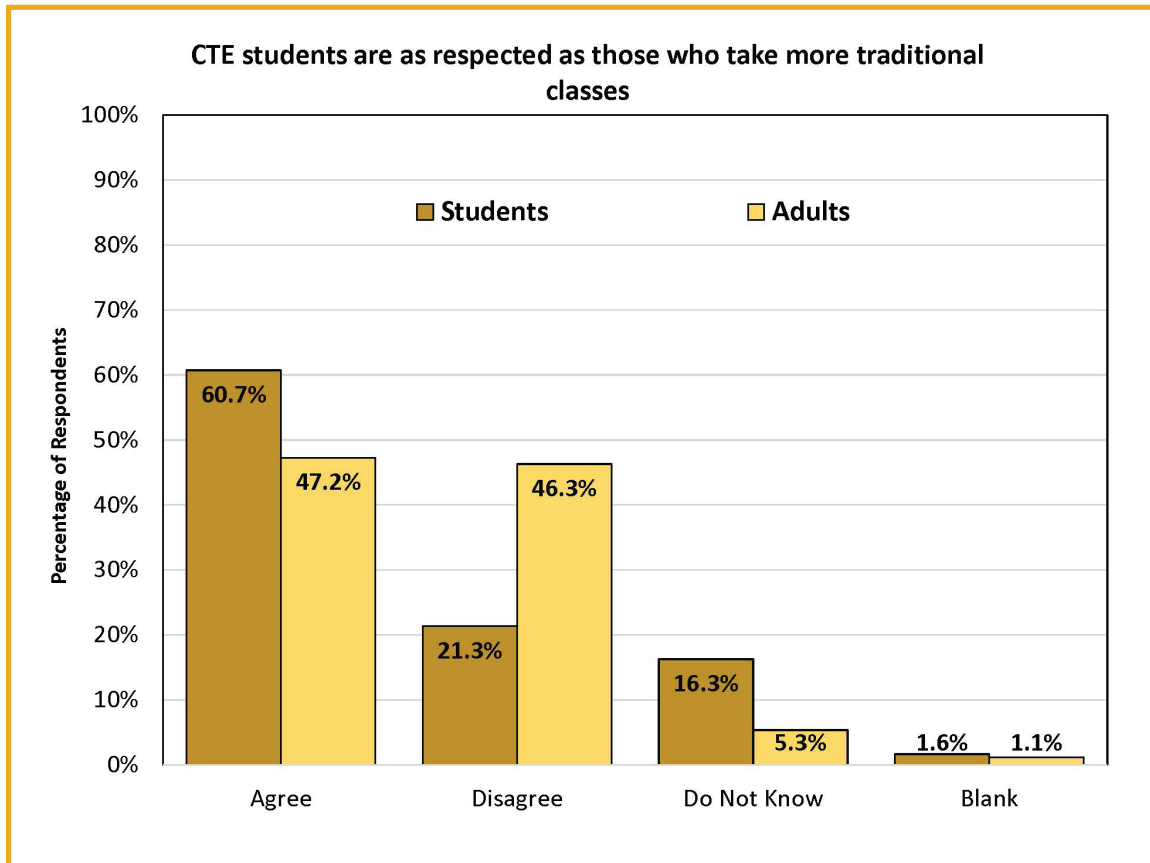
The perception differences were further demonstrated by the responses to the question about whether "the name 'CTE Education' has a negative connotation." Figure 6 shows that almost 37 percent of adults agreed with that statement, but only 24 percent of students felt similarly. Moreover, 14 percent of students did not know whether CTE Education had a negative connotation, whereas less than 5 percent of adults answered the same way. These findings make clear that a significant minority of students have not yet internalized the negative impressions about CTE held by many adults.

Figure 6. The name 'CTE Education' has a negative connotation

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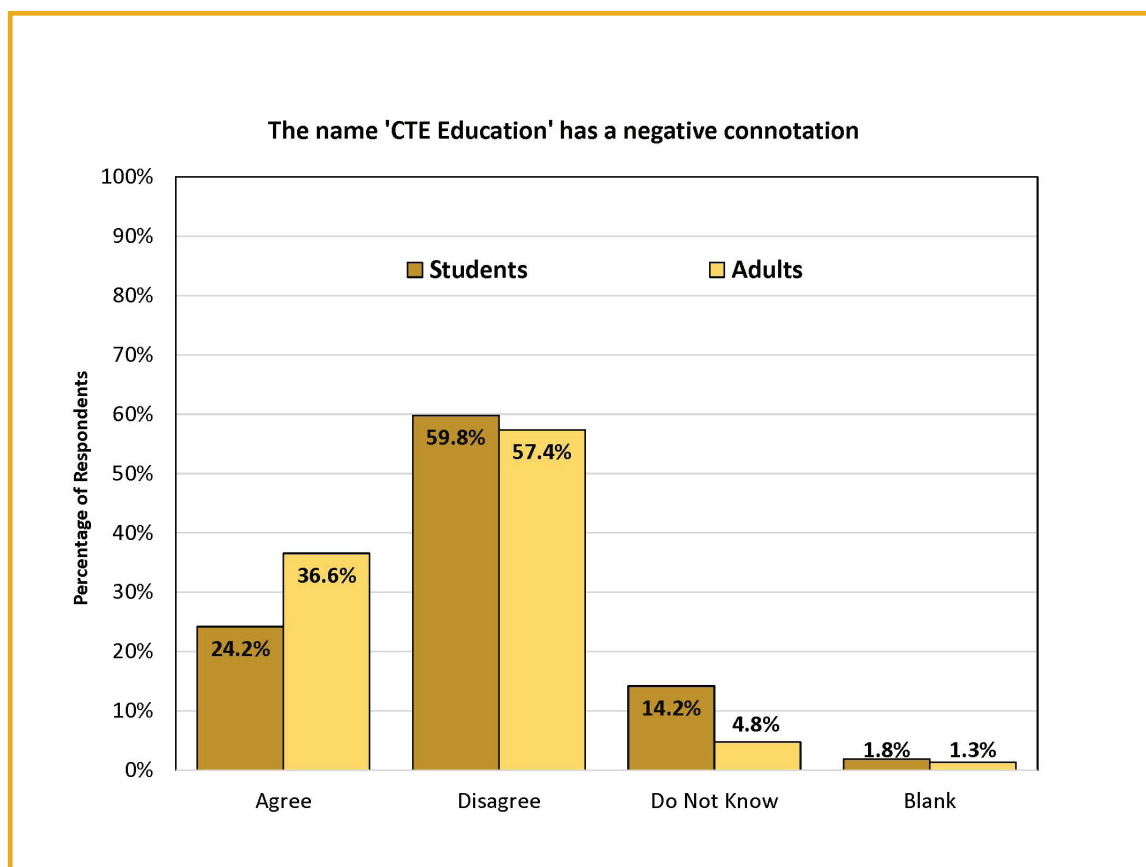
Students often lack awareness about CTE opportunities and careers

Not only are students less likely to have negative perceptions of CTE, but they also have less awareness about the educational and career opportunities afforded by CTE course-work. The survey results show that significant percentages of students responded "Do Not Know" to questions about the opportunities, educational pathways, and earnings potential of CTE.

Figure 7 shows that while many adults understand the earning potential of CTE-related careers, many students do not. Whereas over three-quarters of adults disagreed with the statement that "CTE-related professions pay less than fields requiring a 4-year degree," slightly less than one-third of students disagreed that statement. Over 28 percent of students indicated a lack of knowledge about the earning potential of CTE-related careers, and another 36 percent of students thought that CTE professions paid less than fields requiring a 4-year degree.

Figure 7. CTE-related professions pay less than fields requiring a 4-year degree
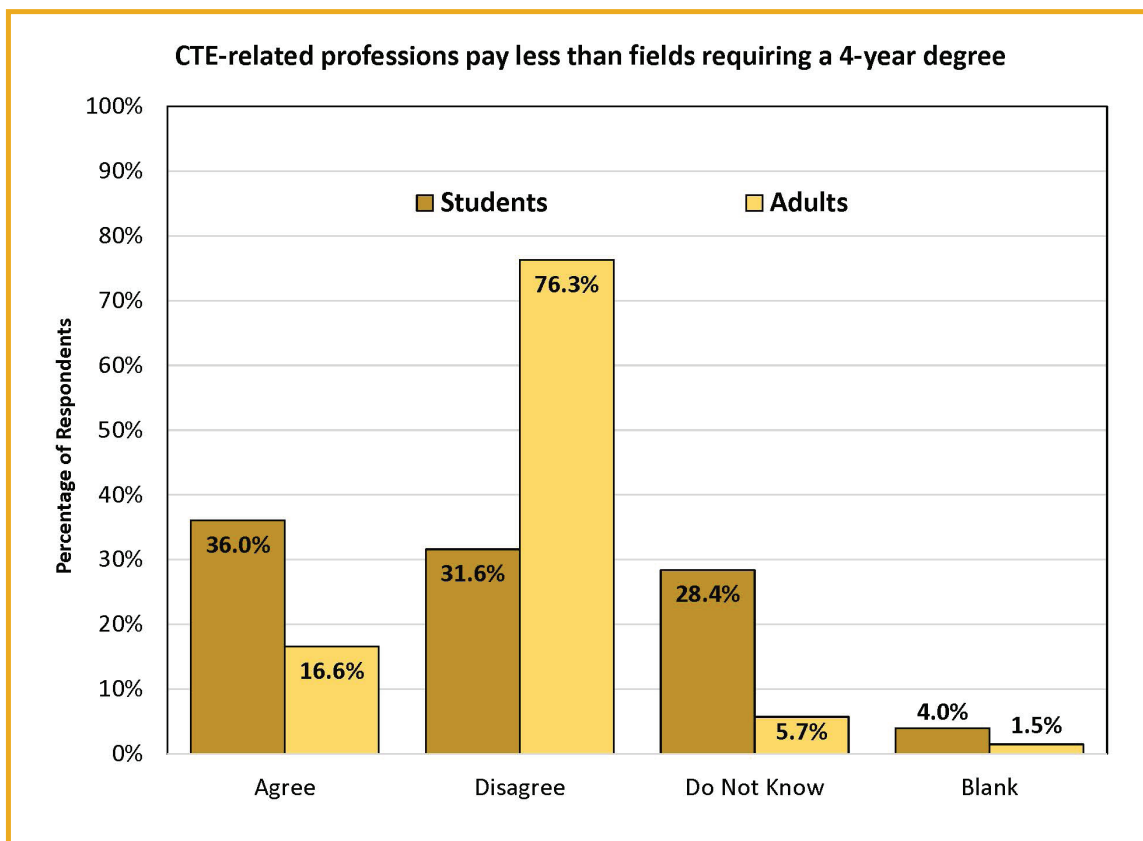
This lack of knowledge about CTE-related careers may explain why many students prioritize the courses that prepare them for college admission. Figure 8 shows that 72 percent of students agreed with the statement that "the most important thing schools should do is teach courses that meet college entrance requirements," with only 18 percent disagreeing. By contrast, adults were more split in their agreement and disagreement to the statement, with about 50 percent of adults agreeing with that statement and 47 percent disagreeing. Furthermore, less than 8 percent of students answered "Do Not Know" to this question. Compared to other questions, this is a relatively small percentage of students responding "Do Not Know" and this may indicate that these perceptions are somewhat more entrenched than other issues pertaining to CTE.

Figure 8. The most important thing schools should do is to teach courses that meet college entrance requirements

The most important thing schools should do is to teach courses that meet college entrance requirements
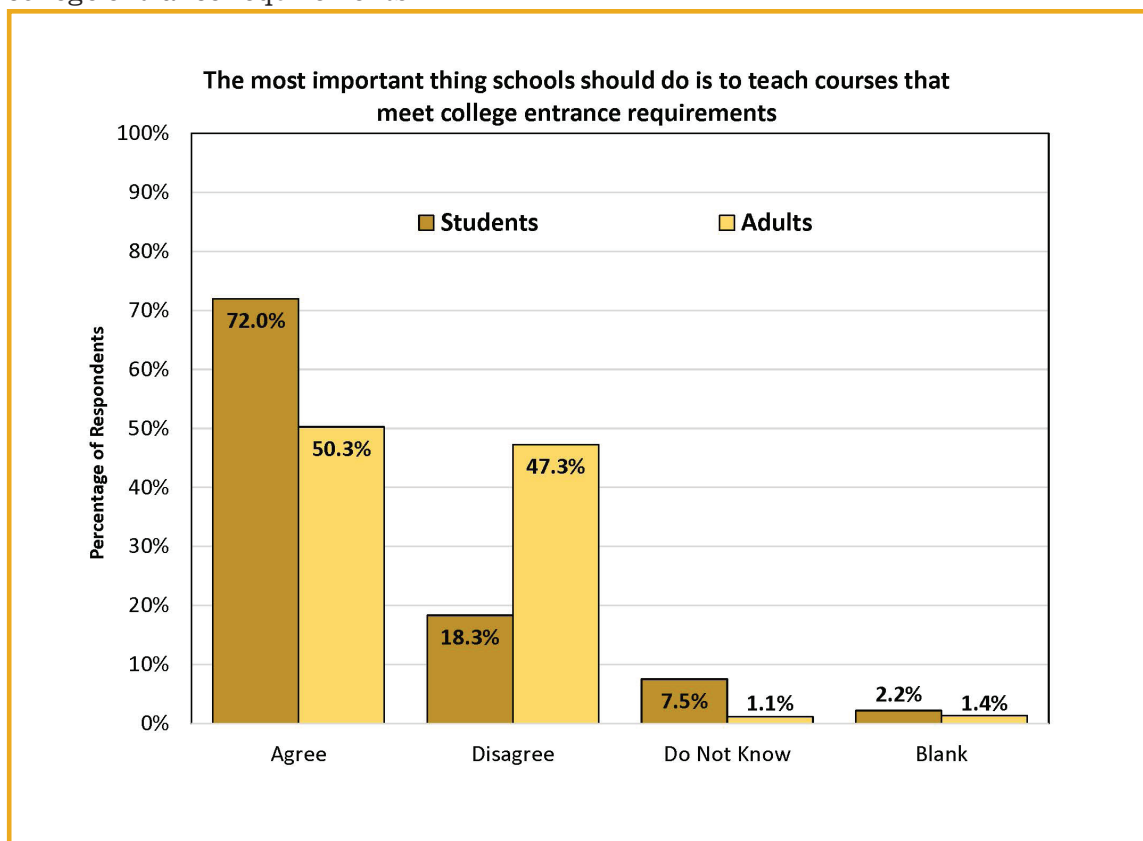
In addition to lacking knowledge about CTE-related careers, a significant number of students also lacked knowledge about the ways in which CTE can help them earn post-secondary degrees and Industry-Recognized Credentials. Figure 9 shows that almost a third of students answered "Do Not Know" to the question "Many community & technical colleges agree to transfer CTE credits." In addition, almost 28 percent of students did know that CTE can lead to Industry-Recognized Credentials that can make them more competitive when they enter the workforce.

Figure 9. Student-specific responses
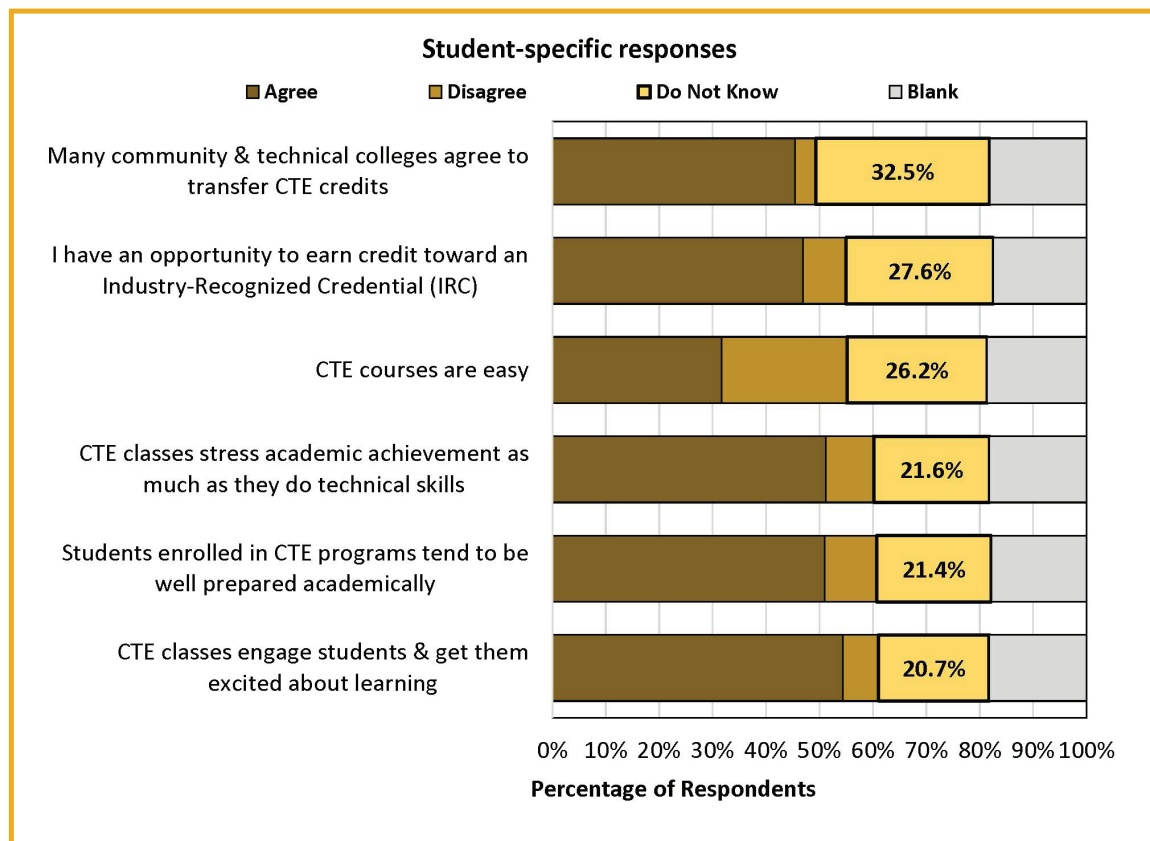
Exposure to CTE improves student awareness of CTE-related opportunities

The survey results show that a significant minority of students that lack awareness of CTE coursework, certifications and careers. As a result, it appears that lack a knowledge of CTE, rather than negative perceptions of CTE, influences student understanding of CTE. In spite of this, the survey results show that greater exposure to CTE classes and programs can help students better comprehend CTE-related opportunities.

Figure 10 shows that the biggest differences between CTE and non-CTE students are found in questions related to the content of CTE courses and the knowledge of CTE instructors. For instance, almost 44 percent of non-CTE students indicated that they did not know if "CTE course are easy". By contrast, only 8 percent of CTE students did not know if CTE course were easy. Similar gaps were seen in questions related to whether CTE classes stressed academic achievement as much as technical skills, the ability of CTE classes to get students excited about learning, and the extent to which teachers were knowledgeable about CTE career pathways. Moreover, there were significant differences between CTE and non-CTE students in their understanding of work-based learning opportunities offered by their school, their opportunities to earn Industry-Recognized Credentials, and the ability to transfer CTE credits to community and technical colleges.

Figure 10. CTE- and Non-CTE Student Responding 'Do Not Know'

CTE- and Non-CTE Student Responding 'Do Not Know'

- CTE courses are easy: 8.0% (CTE Students), 43.6% (Non-CTE Students)
- Many comm. & tech. colleges agree to transfer CTE credits: 30.1% (CTE Students), 43.1% (Non-CTE Students)
- I have an opportunity to earn credit toward an Industry-Recognized Credential (IRC): 23.3% (CTE Students), 37.8% (Non-CTE Students)
- CTE classes stress academic achievement as much as they do technical skills: 8.0% (CTE Students), 35.2% (Non-CTE Students)
- CTE classes engage students and get them excited about learning: 6.3% (CTE Students), 34.4% (Non-CTE Students)
- My teachers are knowledgeable about CTE pathways: 8.1% (CTE Students), 31.9% (Non-CTE Students)

Student Respondents

■ CTE Students
□ Non-CTE Students

Exposure to CTE courses, pathways, and opportunities appears to be one of the best ways to help students develop their knowledge of these opportunities. CTE students are more aware of the content of CTE courses and the academic rigor of those courses; they are consistently more cognizant of the connection between their courses and work based learning opportunities; and they are more likely to understand the credentials that are available through CTE courses as well as the opportunities those courses provide to earn transfer credits. While exposure to CTE is not the only way to tackle this overall lack of knowledge for non-CTE students, it does represent one tangible way to build knowledge based on the results of the survey.

Exposure to CTE—and the opportunities these programs provide—needs to include parents and educators

The survey results clearly point towards exposure as a key means of helping students to understand the pathways and opportunities that CTE affords. However, students are not the only group that needs greater awareness about how CTE can provide opportunities to earn college credit and Industry-Recognized Credentials. Parents and teachers also remain important influences in student lives, and as a result we must also understand their perceptions of CTE and their level of awareness about CTE careers and opportunities.

Parents lack knowledge about CTE-related credentials, programs, and opportunities
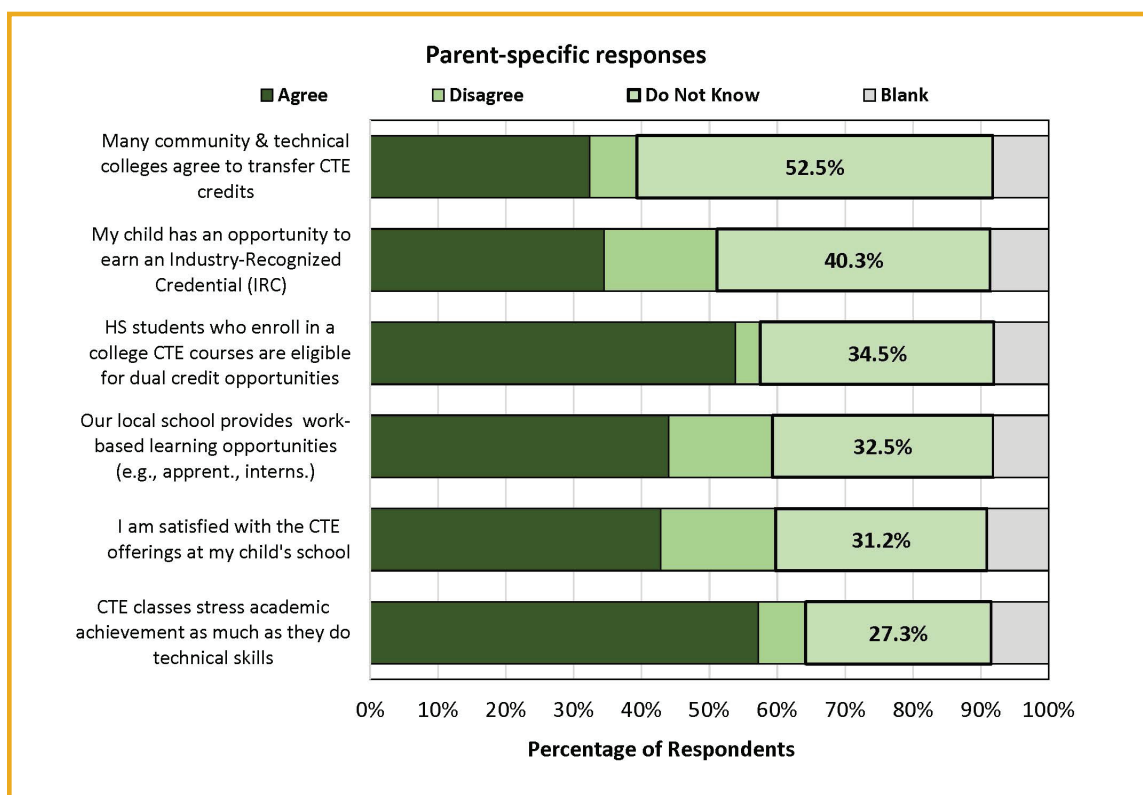
Parents who participated in the survey had very positive impression of CTE.[22] More than 70 percent of parents thought that:
- CTE engaged students and got them excited about learning;
- CTE programs were good for their child;
- Their child should receive more real-world knowledge and skills during high school; and
- Exposure to CTE should begin before high school.

These responses are particularly notable since fewer than 30 percent of parents indicated that they had taken CTE courses when they were in school.

In spite of this positive perception, significant proportions of parents lack knowledge of the career pathways, credentials, and opportunities available through these programs. In particular, many parents are not aware of the opportunities available through CTE for their students. Figure 11 shows that more than half of parents answered 'Do Not Know' to the statement "Many community & technical colleges agree to transfer CTE credits." Additionally, a significant minority of parents lacked knowledge about their child's ability to earn Industry-Recognized Credentials and participate in work-based learning opportunities, or their school's CTE offerings more generally.

Figure 11. Parent-specific responses

It should be noted that there was not significant variation in the responses of parents who participated in CTE when they were in school and those who did not, nor did we find any differences between those parents who hold at least a Bachelor's degree and those parents with less than a Bachelor's degree.[23] This may be due in part to the more recent changes occurring in CTE. That said, this lack of knowledge may impact the ways in which parents advise their children.

Educators view CTE positively, but K-8 teachers lack knowledge about CTE

Educators' responses to the survey mirrored the overall responses of adults, with educators having overwhelmingly positive impressions of Career and Technical Education. Roughly 4,000 survey respondents identified themselves as educators.[24] Among this group, we see a strong affinity for CTE courses and a belief that they are integral for preparing students for future careers. For instance, over 90 percent of educators believed that Career and Technical Education can be a pathway into college for some students, and that CTE was as important as subjects such as Math, English, Science and Social Studies. Clearly, the educators who participated in this survey believe that CTE is not only good for the students who are participating in these courses, but also is a key method that schools have to prepare their students for their future careers.

We also see that educators are even more likely to believe that exposure to Career and Technical Education should begin before high school. Over 85 percent of all educators agreed with the statement "Exposure to CTE programming should occur prior to the start of high school." This compares with almost 72 percent of parents who agreed with the same statement.[25] Although the survey results demonstrate widespread support for CTE, they also indicate that a significant minority of K-8 teachers are not aware of the courses available in CTE or the current CTE opportunities currently provided by their schools. Figure 12 shows that almost 30 percent of K-8 teachers answered "Do Not Know" to the question of whether they were aware of Individual Career and Academic Plans (ICAP), a figure almost twice as great as high school teachers. Moreover, K-8 teachers were also significantly more likely to answer "Do Not Know" to statements asking about their awareness of the CTE certificate; work-based learning opportunities; the preparation provided by IRCs and apprenticeship programs; and the overall quality of the academic skills developed in CTE courses.

As a result, improving CTE awareness among this significant minority of K-8 teachers would strengthen their ability to convey the educational and career opportunities available to students.

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[23] The only difference between subgroups of parents occurred between parents with at least a Bachelor's degree and those with less than a Bachelor's degree. Almost 36 percent of parents with at least a Bachelor's degree said that getting a 4-year degree is the most important step to success, compared with 24 percent of parents with less than a Bachelor's degree.

[24] Roughly, 2,750 participants identified as teachers and nearly 1,000 participants identified themselves as having a primary role of counselor or administrator. Among the nearly 2,750 teachers, almost 960 identified themselves as K-8 teachers and 1,765 identified as high school teachers or higher.

[25] We will note that only 51.9 percent of students agreed with this same statement.

Figure 12. Educators that responded 'Do Not Know'

Educators that responded 'Do Not Know'

- I am aware of the individual career and academic plan (ICAP): K-8 Teachers 28.8%, HS+ Teachers 14.8%
- I am aware of the CTE certificate.: K-8 Teachers 25.8%, HS+ Teachers 10.5%
- CTE classes stress academic achievement as much as they do technical skills.: K-8 Teachers 25.1%, HS+ Teachers 10.8%
- Our local school provides work-based learning opportunities (e.g., apprent., interns.): K-8 Teachers 25.1%, HS+ Teachers 7.7%
- Earning an IRC or doing an apprenticeship program prepares workers as well as a 4-year degree: K-8 Teachers 22.4%, HS+ Teachers 13.3%

Percentage of Educator Respondents

☐ K-8 Teachers
■ HS+ Teachers

Businesses value CTE certifications and credentials, but need stronger connections to CTE programs
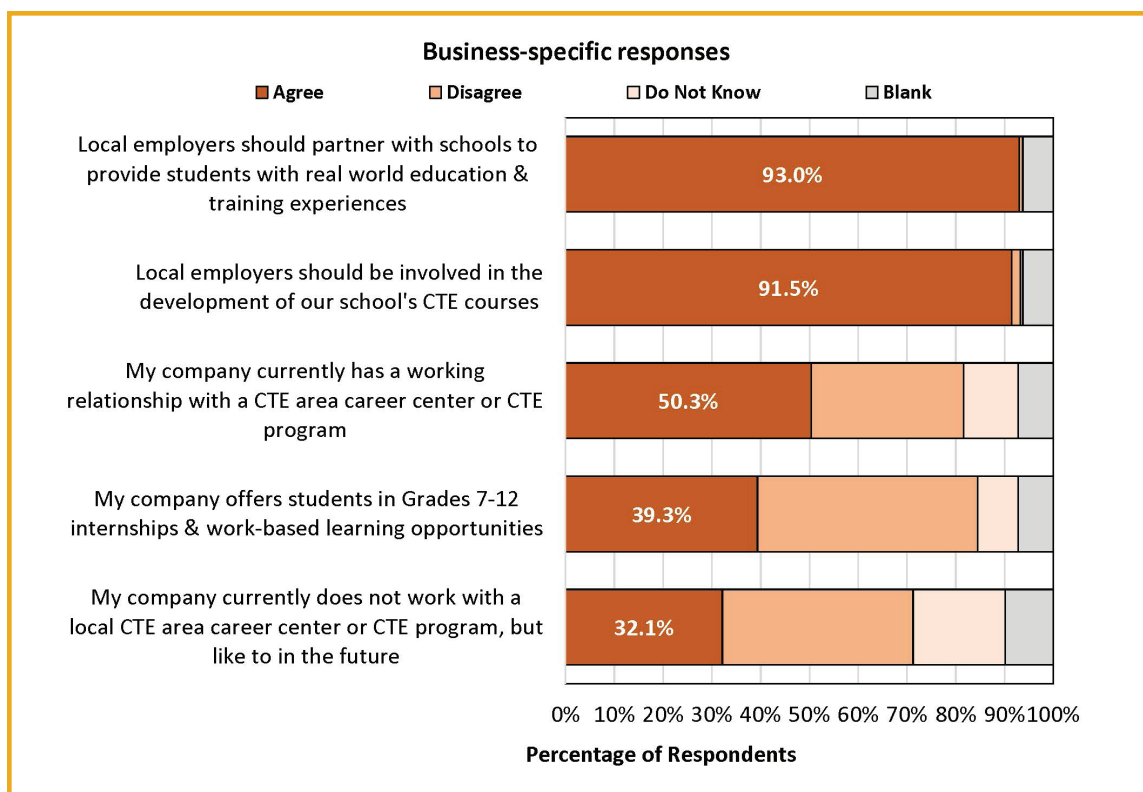
Business leader survey responses mirrored the responses of the broader adult population. Namely, business leaders all had an overall positive impression of CTE. For instance,

- 86.5 percent of business leaders believed that CTE classes will teach students transferrable skills that will serve them well in this economy;
- 84.5 percent indicated that a CTE certificate would give added value or preference to potential employees; and
- 79.1 percent noted that students who take CTE classes are better prepared for employment than those who do not take CTE.

As demonstrated in Figure 13, business leaders not only value CTE education, but also believe that businesses have an important role in building relationships with educational providers to guide their CTE offerings. For instance, over 90 percent of employers believe that businesses should "partner with schools to provide students real world education & training experiences" and should also be "involved in the development of our school's CTE courses."

Although employers value CTE, a significant proportion of respondents indicated that they are not actively connected to programs in their community. As Figure 13 shows, roughly half of business leaders had a working relationship with CTE programs, and less than 40percent of business leaders currently offer students internships and work-based learning opportunities.

Figure 13. Business-specific responses

Business-specific responses

■ Agree   □ Disagree   □ Do Not Know   □ Blank

- Local employers should partner with schools to provide students with real world education & training experiences — **93.0%**
- Local employers should be involved in the development of our school's CTE courses — **91.5%**
- My company currently has a working relationship with a CTE area career center or CTE program — **50.3%**
- My company offers students in Grades 7-12 internships & work-based learning opportunities — **39.3%**
- My company currently does not work with a local CTE area career center or CTE program, but like to in the future — **32.1%**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percentage of Respondents

While these numbers could certainly be improved, a subset of business leaders did express frustration in the comments about the flexibility and responsiveness of CTE programs to their partnership overtures. Regardless, building stronger connections between employers and CTE programs will not only help employers solve some of their workforce issues, but will also help students build stronger knowledge about CTE careers and make CTE a more attractive educational pathway.

Comments reinforce the issues identified in the survey and add accessibility to CTE-related programs and facilities as a key issue

Respondents were given the opportunity to submit comments at the conclusion of the survey. The survey received over 1,200 comments, with nearly half of the comments coming from people who identified themselves as educators. After analyzing the survey data, representatives from the Labor and Workforce Development Program read through the comments and analyzed their content. We then took those comments and grouped them into a series of themes.

Overall, a majority of the comments reinforce findings of the survey while also adding some clarity to those findings. The majority of these comments reflect the core issues addressed in the survey, including:

- A lack of knowledge about CTE programs and pathways;
- The continuing negative perceptions that exist about Career and Technical Education;
- The challenges that exist in connecting CTE programs to businesses; and
- The transferrable skills that students can learn through participation in CTE.

However, the comments raised another key issue—accessibility. The survey did not ask questions relating to the accessibility of CTE programs and how accessibility influences perceptions of CTE nor did it offer opportunities for follow up. As a result, we cannot fully ascertain how widespread this issue is around the state. However, it was a signicant issue for those that provided comments.

Accessibility appears as an issue for commenters in several ways. First, a number of respondents note that the lack of geographic proximity to Career Centers and other CTE programs creates hardships for students and the school district. For example, a business leader said:

> "We need more options for students within their communities. We are a large school district that could maintain our own program, but currently we bus our students 45 miles one way. I feel as though the lack of opportunity within our own town hinders the number of students attending and receiving training."

Moreover, other commenters noted that the costs associated with the lack of geographic proximity are significant for both school districts and students. One educator explicitly said in their comments that "costs for school districts is a deterrent," noting that if all interested students attend the nearest CTE program, the district's cost of tuition alone would be "almost $100,000. " Furthermore, this educator continues that in addition to the costs of tuition, "we have the cost of transportation which leads to a burden for the district." In addition to the financial costs, multiple parents and educators noted that the time costs for CTE programs—particularly those at a distance—are a significant burden for students. They noted that students did not have time to participate in CTE to courses due to the demands of their core requirements for graduation and the competitive environment that exists around electives.[26]

Commenters also raised a second accessibility issue, and that the lack of sufficient capacity that exists in many CTE programs. This issue is especially prevalent in the comments from parents, who noted that the limited capacity of many CTE courses means that their child and other students do not have the opportunity to participate in CTE courses. For instance, one parent said "My local school offers a wide range of CTE which is wonderful. However they are so popular that they fill up quickly." Echoing that perspective, another parent noted that "We bus very few and only a select few students to Cass Career for VoTech type classes. I think about 35 students a year get to go. We have about 1600 9-12 students and only 38 or so get to go for VoTech. This is NOT enough."

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[26] For example, one educator commented "Between graduation requirements and popular electives such as Music, etc. it is hard for many students to CTE courses in to their schedules." Parental comments reinforce this perception, including one that said the way CTE is handled "would make it difficult logistically for a student to complete, e.g. an industrial certification and AP / other DE academic classes of interest without attending all classes at the local CC their senior year and removing them from the social environment of the high school."

Students were not as vocal as parents about capacity issues impacting their ability to participate in CTE classes, although one student did comment that they believe that CTE classes should be more widely available "due to the limitations on how many students schools can send." A number of educators strongly echoed the capacity issues around CTE courses, noting that while there might be interest in the courses, the number of students who can take the courses is limited due to a lack of teachers, space, and funding for participation.[27]

Two other sets of issues were raised about the accessibility of CTE courses and programs. First there are a number of comments arguing that students should be able to take CTE courses earlier in their high school careers, or even prior to high school.[28] Many of these comments operate on a belief that earlier exposure to CTE will not only help students better plan their high school pathways, but will also help students who are facing difficulties in the traditional educational system understand that there are other options available. Secondly, several other commenters noted that while there is interest in having students work outside of their school, an insufficient number of internships and work-based learning opportunities make it nearly impossible to significantly expand programs.[29]

Besides the issues highlighted above relating to accessibility, most of the relevant comments submitted as part of this process reinforce and clarify the findings found in the survey.[30] Not surprisingly, many comments from parents, students, business leaders and educators focused on their lack of knowledge about CTE classes and programs.[31]

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[27] Perhaps the most representative comment comes from an educator that says "I would like to see more opportunities available to our students from our school. We are only allowed to send a very limited number of students to the local program at a neighboring district and if a student is not chosen then they miss out on the opportunity." This limitation is echoed by an educator from Columbia who commented that "In our local district (Columbia), class sizes are kept small at our local Career Center. Thus, many students in our growing population do not get the opportunity to take courses which would benefit them."

[28] One example of this type of comment comes from a parent who says "I feel that there should be more options than what we have. I also feel that students should be able to start CTE as early as a freshman in high school. My child's current School only allows students to take CTE courses their Junior and Senior year." This perception is reinforced by a business leader who says "Vocational ed should be introduced earlier...at least by 8th grade" and follows up that students who need this type of coursework are often excluded from it. A number of educators echo these views, arguing that CTE classes should be available at the "9th grade level instead of waiting until the 11th grade," "BEFORE the high school years," and even want to expand the programs "to Middle School."

[29] For example, one business leader noted that "states and districts need to open up more flexibility on allowing students to participate in active internships which are not through a career center or program. Flexibility for graduation credits requiring more opportunities for students to take "non seated" credit through internships, shadowing, etc." At the same time, another business leader notes that it is difficult for employers "to establish work experiences/internships for high school students due to Wage and Hour laws, limited time during the school year and Workman's Compensation coverage for students. Employers don't want to take on liability." While we are not able to discern the reasons behind the lack of work-based learning opportunities, it is clear from the commenters that more opportunities are needed.

[30] We will note that there were a number of comments submitted that did not contribute to our overall understanding of the perceptions of CTE around Missouri. These comments range from one word answers such as "Nope" to people entering their email addresses to telling us what school they attend.

[31] Many parents noted that they do not know where to get information about CTE, including a parent who said "I don't know what programs are available at my local schools or where to find information about this program."

In addition, there are a number of statements that also clarify and reinforce the negative perceptions that exist about CTE, particularly as it relates to CTE courses and programs being "seen as a place where kids with bad grades and problems behaving in a classroom go."[32]   This theme includes a number of comments from supporters of CTE programs who reinforce the CTE/college divide by arguing that CTE should be supported because "college is not and should not be for everyone." Educators also provided a great deal of insight into the continuing negative perceptions of CTE, with a number highlighting the different ways that negative CTE perceptions continue to impact these programs.[33]

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[32] A comment from a student that was submitted as part of this survey. While most students did not include this type of stereotype in their response, the theme that CTE is a pathway for people not cut out for other types of education reappears a number of times in comments from students, parents, educators, and business leaders.

[33] Educators who participated in the survey report that there needs "to be more respect from administrators," that they are "Still fighting an antiquated view of Agriculture among students and parent," and that "CTE programs are frowned upon." One of the key points of contact highlighted in a number of answers are school counselors, with some commenters saying that "our school counselors treat CTE and practical arts classes as a dumping ground for students" while some students report being discouraged from participating in CTE by counselors. At that same time, one counselor noted that "for so long there has been such a stigma surrounding CTE course work that it is difficult to overcome that as a counselor. Students believe that you should go to a 4-year college in order to "make something of yourself" and think that CTE course work is for the students who wouldn't make it in college."

Key findings and conclusions

This survey represents the first recent effort to understand how Missourians perceive CTE programs. Nearly 10,000 Missourians took the time to answer the DESE survey and give their insight. The survey found that overall Missourians have a positive view of CTE and see it as a pathway to help students pursue rewarding careers, and a tool for employers to find the kinds of workers their businesses need to succeed.

However, the survey results show that there are several issues that must be addressed in order to further grow and promote CTE in Missouri. Even though survey respondents had a positive impression of CTE, they nevertheless believe that many others have a negative view of CTE. For instance, a majority of adults continue to believe that CTE focuses on students who probably will not attend college and that CTE students are not as respected as those who take more traditional classes.

However, the good news is that students are less likely to hold similar views. The survey results showed that more often than not students either had either a positive impression of CTE or had not yet formed an opinion. Significant numbers of students were unaware of the earning potential associated with CTE careers, and almost a third of students did not know how CTE can help them pursue the industry certifications and postsecondary educational opportunities that will prepare them for those careers.

It is important to note that this lack of awareness was less of an issue for students already exposed to CTE. Therefore, exposing more students to CTE courses and having ongoing conversations about the opportunities to earn certifications, transfer credits to college, and have work-based learning experiences should be a priority. In the absence of this information, students might limit their future options by focusing primarily on completing a 4-year course of study with a focus on traditional 4-year college disciplines. Exposure cannot stop with students, though. Routine conversations about CTE must also include parents and teachers, and these conversations should begin well before students get to high school. At the same time, while the survey did not fully assess accessibility issues, the comments point towards a need to improve accessibility to CTE courses and programs if awareness of CTE is going to increase.

Finally, successful CTE programs provide real work-based learning and career exploration opportunities. While employers want to engage with schools and schools want opportunities for their students, making these connections between employers, schools and students can prove challenging. As a result, there needs to be a continued focus on creating effective work-based learning opportunities, internships, and other means of exposing students to the opportunities and demands of the workplace.

APPENDIX 1: Responses by county

County	Responses
Adair	10
Andrew	17
Atchison	20
Audrain	42
Barry	84
Barton	33
Bates	30
Benton	34
Bollinger	47
Boone	142
Buchanan	42
Butler	36
Caldwell	15
Callaway	97
Camden	32
Cape Girardeau	148
Carroll	36
Carter	3
Cass	218
Cedar	26
Chariton	30
Christian	71
Clark	5

Clay	111
Clinton	95
Cole	67
Cooper	53
Crawford	15
Dade	6
Dallas	55
Daviess	20
DeKalb	17
Dent	19
Douglas	4
Dunklin	75
Franklin	144
Gasconade	15
Gentry	6
Greene	141
Grundy	10
Harrison	10
Henry	27
Hickory	14
Holt	2
Howard	26
Howell	97
Iron	19
Jackson	287

Jasper	488
Jefferson	160
Johnson	58
Knox	5
Laclede	17
Lafayette	43
Lawrence	40
Lewis	14
Lincoln	35
Linn	65
Livingston	86
Macon	32
Madison	68
Maries	29
Marion	40
McDonald	5
Mercer	12
Miller	36
Mississippi	14
Moniteau	16
Monroe	28
Montgomery	22
Morgan	9
New Madrid	29
Newton	65

County	Responses
Nodaway	111
Oregon	18
Osage	17
Ozark	12
Pemiscot	25
Perry	35
Pettis	39
Phelps	84
Pike	41
Platte	50
Polk	53
Pulaski	43
Putnam	34
Ralls	54

Randolph	43
Ray	24
Reynolds	3
Ripley	11
Saline	60
Schuyler	2
Scotland	2
Scott	74
Shannon	4
Shelby	16
St. Charles	192
St. Clair	6
St. Francois	93
St. Louis	449

St. Louis City	87
Ste. Genevieve	83
Stoddard	43
Stone	19
Sullivan	8
Taney	27
Texas	36
Vernon	59
Warren	27
Washington	9
Wayne	16
Webster	43
Worth	11
Wright	17

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