

2020-21

Evaluation of Career and Technical Education

DEPARTMENT OF EVALUATION AND ASSESSMENT

*Michael Hinojosa, Ed. D.
Superintendent of Schools*



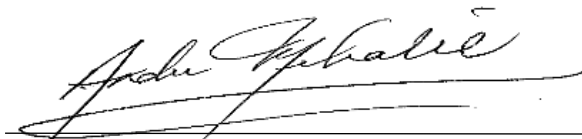
2020-21

Evaluation of Career and Technical Education

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
PROGRAM DESCRIPTION	5
PURPOSE AND SCOPE OF THE EVALUATION.....	6
EVALUATION QUESTIONS AND RESULTS	6
What were the sources and amount of funding for the program?	6
Methodology	6
Results	7
What were the components of the CTE program?	8
Methodology	8
Results	8
What were the enrollment characteristics of CTE students?.....	14
Methodology	14
Results	15
What were the completion rates for CTE courses?	23
Methodology	23
Results	23
What were the academic outcomes of CTE students on <i>STAAR EOC</i> exams?.....	27
Methodology	27
How many credentials were earned by CTE high school students?.....	28
Methodology	28
Results	28
How many associate degrees were awarded to CTE students?	29
Methodology	29
Results	30
What were the college enrollment rates for CTE students?	31
Methodology	31
Results	31

How did the Dallas ISD perform on CTE related accountability measures?	32
Methodology	32
Results	32
What were teacher perceptions of the CTE program?.....	35
Methodology	35
Results	35
KEY FINDINGS AND RECOMMENDATIONS.....	38
Key Findings.....	38
Recommendations	40
REFERENCES.....	41
APPENDICES	42

LIST OF TABLES

Table 1: 2020-21 Dallas ISD CTE Budget.....	7
Table 2: 2020-21 Number of NAF Academies by Career Theme and Campus.....	10
Table 3: 2020-21 Feeder High Schools for Career Institutes East, South and North.....	13
Table 4: 2020-21 Student Enrollment by Grade	15
Table 5: 2020-21 CTE Student Enrollment by Status	16
Table 6: 2020-21 CTE Student Enrollment by Career Cluster	18
Table 7: 2020-21 CTE Course Enrollment by Career Cluster	18
Table 8: 2020-21 Dallas ISD NAF Student Enrollment	19
Table 9: 2020-21 Career Institute Enrollment by Feeder High Schools.....	20
Table 10: 2020-21 Student Characteristics	21
Table 11: 2020-21 Students Enrolled in One or More CTE High School Program	22
Table 12: 2020-21 Student Characteristics by CTE Program	22
Table 13: 2020-21 CTE Course Enrollment and Completion Rates by Career Cluster and CTE Status	24
Table 14: 2020-21 CTE Dual Credit Course Completion Rates by Campus and CTE Status.....	26
Table 15: 2020-21 Percentage of CTE Students Meeting <i>STAAR EOC</i> Approaches Grade Level or Above	27
Table 16: 2020-21 CTE Credentials Earned by Campus.....	29
Table 17: 2020-21 Number of Associate Degrees Awarded to CTE Students	30
Table 18: 2020-21 Associate Degrees Awarded to CTE Coherent Sequence Students by Degree Plan	31
Table 19: 2020-21 College Enrollment Rates for 2019-20 Dallas ISD Graduates	32
Table 20: 2018 to 2020 Dallas ISD College, Career, and Military Readiness Indicators.....	33
Table 21: 2021 Dallas ISD, Austin ISD, El Paso ISD, Fort Worth ISD, Houston ISD, San Antonio ISD CTE College, Career, and Military Readiness Indicators	34

LIST OF FIGURES

Figure 1: 2020-21 Organizational Chart of Career and Technical Education Offerings	8
Figure 2: 2020-21 Number of Career and Technical Education Endorsements by Career Clusters and Pathways	9
Figure 3: 2019-20 to 2022-23 Implementation Timeline for Career Institutes.....	12
Figure 4: 2020-21 CTE Teacher Perceptions of the CTE Program.....	36
Figure 5: 2020-21 CTE Teacher Perceptions of CTE Program Focus and Implementation.....	37

LIST OF APPENDICES

A	2019-20 Career Pathways and Academies by Campus	43
B	2020-21 CTE Indicator Auto-Coding.....	44
C	2020-21 Career Institute Pathways.....	45
D	2019-20 CTE Student and Course Enrollment by Career Cluster	46
E	2019-20 CTE Course Enrollment and Completion Rates	48
F	2019-20 Tracks for the Associates Degree in Applied Science	50
G	2019-20 CTE Teacher Perceptions of the CTE Program.....	51

ACRONYMS AND ABBREVIATIONS

Approaches+	Approaches Grade Level or Above
CCMR	College, Career, and Military Readiness
CI	Career Institutes
CTE	Career and Technical Education
ECHS	Early College High School
EOC	<i>End-of-Course</i>
FTE	Full-Time Equivalent
HB22	Texas House Bill 22
HB5	Texas House Bill 5
HS	High school
IDEA	Innovation, Design and Entrepreneurship Academy
ISD	Independent School District
Meets+	Meets Grade Level or Above
NAF	National Academy Foundations
NSC	National Student Clearinghouse
PBMAS	Performance-Based Monitoring Analysis System
PD	Professional development
PLTW	Project Lead The Way
P-TECH	Pathways to Technology
SPED	Special education
STAAR	<i>State of Texas Assessments of Academic Readiness</i>
STEM	Science, Technology, Engineering, and Mathematics
TAG	Talented and Gifted
TEA	Texas Education Agency

Evaluation of Career and Technical Education

DEPARTMENT OF EVALUATION AND ASSESSMENT

EXECUTIVE SUMMARY

The primary purpose of the Career and Technical Education (CTE) program is to prepare students for college and career success by providing them with the skills necessary to be competitive in a global economy. To meet this goal, the Dallas Independent School District (ISD) offers courses across 51 comprehensive CTE pathways to students in grades six through 12. Courses can be taken as one-off courses or in a program of study at participating middle and high schools. Students can also participate in CTE by taking courses through National Academy Foundation (NAF), Career Institutes (CI), or Early College High School (ECHS) programs. Through participation in CTE, students can earn diploma endorsements, industry certifications, educational certificates, and college credit hours. In addition, students can participate in paid internships. The CTE program is coordinated by the CTE Department under Teaching and Learning. Program activities are partially funded through both state CTE funds and a grant established by the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV). In 2020-21, the total Dallas ISD CTE budget was \$40,379,434, which included \$28,139,321 for payroll expenses, and \$4,046,618 for the Career Institutes. The purpose of this evaluation was to provide 1) context information related to key components of the program and 2) data for campus, program, and district leadership to examine the implementation and program outcomes of the CTE program.

EVALUATION QUESTIONS/OUTCOMES

What were the components of the CTE program?

CTE course offerings are centered around three endorsements: Business and Industry; Public Service; and Science, Technology, Engineering and Mathematics (STEM). Within each of the endorsements, a student can select a career cluster, followed by a pathway.

For the 2020-21 school year, Perkins V redefined pathways, resulting in the merging of several previously offered pathways. To better align with the new programs of study created by the Texas Education Agency (TEA), the number of pathways offered dropped from 271 in 2018-19 to 51 comprehensive pathways in 2020-21. While CTE courses were previously offered as either a CTE coherent sequence of courses or electives, TEA revised the way they characterized CTE students in 2020-21. Starting with the 2020-21 school year, CTE student were identified by TEA

as either CTE Participants, CTE Explorer, CTE Concentrator, or CTE Completer based on CTE course enrollment. Generally, CTE Participants and Explorers are similar to students in prior years identified as CTE elective, whereas CTE Concentrators and Completers are similar to CTE Coherent Sequence students prior to 2020-21.

NAF Academies

In 2020-21, the Dallas ISD, in cooperation with NAF, operated 48 NAF academies at 20 high schools. NAF academies were designed to be small learning communities that operate based on a "school within a school" model within the existing high school systems. These academies are based around one of five high-growth career industries: Engineering; Finance; Health Sciences; Hospitality and Tourism; and Information Technologies. NAF academies provided students career-focused educational experiences within and outside the classroom. The NAF curricula incorporates industry standards and practices, literacy strategies, and STEM integration, while emphasizing project-based learning. Students can explore career interests and participate in career preparation activities, including mock interviews and paid internships. Students who successfully complete their academic courses, workplace projects, and internship can earn the NAFTrack Certification, indicating to post-secondary institutions and employers that the student is college- and career-ready. The NAFTrack Certified Hiring program is a commitment made by top American companies to consider these qualified students as eventual job applicants. All NAF academies have an open enrollment policy.

Career Institutes

Career Institutes provide high school students the opportunity to obtain relevant workforce readiness skills and post-secondary education in high-demand vocations to earn a living wage after graduating high school. Career Institutes function as a hub serving their surrounding high schools. By 2026-27, Dallas ISD plans to establish a total of four Career Institutes, one for each quadrant of the city (north, south, east, and west). CTE program documents indicated that "these state-of-the-art facilities will feature real-world learning spaces and industry standard equipment, providing students access to post-secondary education, training, and career pathways that may be inaccessible on their home

campus”.¹ Pathways offered at the Career Institutes are tuition free for all Dallas ISD students and have open enrollment. Students will take Career Institute pathway courses for half a day, twice a week at dedicated Career Institute campuses. Transportation of students from and to their home campus is free of charge. According to the Dallas ISD Board Update presented by the Executive Director of STEM on March 7, 2019, structuring the Career Institutes as hubs has several advantages, including:

- Cost-effectiveness,
- Student choice,
- Student recapture and retention.

Early College High Schools

In 2020-21, the Dallas ISD operated 25 ECHSs, including seven traditional ECHSs and 18 Pathways in Technology Early College High Schools (P-TECH). Each P-TECH was paired with an institution of higher learning (IHE) and one or more industry partners. Students enrolled in a P-TECH can earn up to 60 tuition-free, dual-credit hours and graduate with an Associate Degree of Applied Science in one of 32 fields. Out of the 60 dual-credit hours, students can take up to 18 credit hours of CTE related coursework. P-TECH students also have an opportunity to earn industry-based certifications and educational certificates in their selected career pathways that are attractive to employers and gain valuable workplace skills through one of the industry partners.

Credentials

Certificates are types of credentials that are predominately awarded by two-year institutions of higher learning for the satisfactory completion of a workforce education program. Certifications are types of credentials that are usually granted by an organization, such as a trade association, validating that an individual possesses certain skills. An occupation may have multiple certifications with different levels of expertise. Unlike certificates, certifications are often time-limited credentials and need to be renewed periodically. Since 2017-18, school districts are required to report student-level data to TEA about industry-based certifications that meet TEA accountability requirements. The 2020-21 list of approved industry-based certifications for the A-F Accountability System included 244 certifications within 14 primary career clusters.

CTE Implementation in Middle Schools

Forty-Three out of 45 middle schools (96%) offered one or more CTE courses in 2020-21 (a 13% increase from 83% in 2019-20). Of the 21 CTE courses offered, five were considered foundational courses and qualified for middle

school credit, while 16 courses could be taken for high school credit. Five of the 21 courses utilized PLTW Gateway curricula. CTE department leadership highly recommended all middle school students take the College and Career Readiness class, and one of the four Investigating Careers classes in grade eight to have a better understanding of CTE options in high school. Thirty-one middle schools (69%) offered the College and Career Readiness class and 23 middle schools (51%) offered one or more of the Investigating Careers classes.

What were the enrollment characteristics of CTE students?

During the 2020-21 school year, 42,029 students participated in CTE, including 12,862 middle school students and 29,167 high school students (Table E1), an overall increase of 10 percent ($n=3,954$) compared to 2019-20. In 2020-21, 45 percent of the 42,029 CTE students were CTE Participants ($n=18,963$), 23 percent were CTE Explorers ($n=9,845$), 22 percent were Concentrators ($n=9,417$), and nine percent were CTE Completers ($n=3,804$).

Table E1: 2020-21 CTE Enrollment by Grade

Grade	N	%
Middle School		
Grade 6	1,312	3.1
Grade 7	5,557	13.2
Grade 8	5,993	14.3
High School		
Grade 9	7,251	17.3
Grade 10	8,047	19.1
Grade 11	7,098	16.9
Grade 12	6,771	16.1
Overall		
Overall Middle School	12,862	30.6
Overall High School	29,167	69.4
Overall	42,029	100.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

Districtwide, CTE students took the highest percentage of courses within the Business Management & Administration (29%), followed by Science, Technology, Engineering and Mathematics (20%), and Arts A V Technology Communications (14%)

High school students were able to participate in traditional CTE course offerings and enroll in specialized CTE programs such as Career Institutes, NAF Academies, and ECHSs. Of the 29,167 high school students who enrolled in CTE courses in 2020-21, 13,709 students enrolled in one or

¹ Career Institutes brochure Developing Leaders Building Futures and March 7, 2019 Dallas ISD Board Briefing on Career Institutes.

more of these specialized high school CTE programs. Although 93 percent of the 13,709 students enrolled in only one of these programs, seven percent enrolled in two or three programs. Overall, 2,043 students enrolled in Career Institutes, 7,754 students enrolled in NAF Academies, and 4,977 students enrolled in ECHSs.

The ethnic composition of district CTE students was similar to middle and high school students not enrolled in the CTE program (percentages were within three percentage points). A smaller percentage of CTE students received special education services (8%) compared to non-CTE students (13%). Forty-two percent (an increase of three percentage points over 2019-20) of CTE students were English learners compared to 44 percent of non-CTE students and 18 percent of CTE students were or Talented and Gifted (TAG) eligible compared to 20 percent of non-CTE students. In contrast, there were slightly more economically disadvantaged CTE students (84%) than non-CTE students (83%). In 2020-21, CTE students were at the same risk of dropping out than non-CTE students (66%), a reduction of 11 percentage points over 2019-20.

What were the completion rates for CTE courses?

In 2020-21, CTE middle and high school students passed 81 percent of all CTE courses, compared to 93 percent in 2019-20. Passing rate by career clusters ranged from 69 percent (Agriculture Food Natural Resources) to 94 percent (Health Science). CTE Completers had the highest overall passing rate of 94 percent followed by CTE Concentrators (89%), and CTE Participants (77%). CTE Explorers had the lowest overall passing rate of 70 percent. Of the 4,977 Dallas ISD students participated in 10,451 CTE dual credit courses of which they passed 8,247 courses (79%). Thirty-five percent of CTE students who took dual credit courses were CTE Explorers ($n=1,741$), followed by CTE Participants ($n=1,322$, 27%), CTE Concentrators ($n=1,153$, 23%), and CTE Completers ($n=761$, 15%).

What were the academic outcomes of CTE students on STAAR EOC exams?

Overall, 15,013 out of the 29,167 CTE high school students took one or more *STAAR EOC* exams in 2020-21 (51%). The subject test with the highest participation count was English II ($n=7,734$), followed by U.S. History ($n=6,600$). Majority of CTE students met the Approaches+ benchmark for U.S. History (85%), followed by Biology (62%) and English II (60%). CTE Concentrators participated in the greatest number of *STAAR EOC* exams, while CTE Completers met the Approaches + benchmark most often (75%) across all subject tests, followed by CTE Concentrators (68%).

How many credentials were earned by CTE high school students?

Overall, 3,866 Dallas ISD CTE students earned 4,921 credentials in 2020-21, including 4,454 industry-based certifications and 467 educational certificates. This is an increase of 715 credentials from 2019-20 (4,206 credentials). Compared to 2019-20, the number of industry-based certifications increased by 1,122, while the number of educational certificates decreased by 408.

How many associate degrees were awarded to CTE students?

Overall, 791 CTE graduates earned an associate degree in 2020-21. Of these, all but one were ECHS students, including 584 PTECH students and 206 traditional ECHS students. Students who participated in a program of study (CTE Concentrators and CTE Completers) accounted for 532 associate degrees (67%). In 2020-21, more Associate of Science degrees were awarded to CTE students ($n=374$, 47%) than Associate of Applied Science ($n=275$, 35%), Associate of Arts ($n=97$, 12%), or Associates of Arts in Teaching ($n=45$, 6%) degrees.

What were the college enrollment rates for CTE students?

According to the 2020-21 NSC data file, 31 percent of CTE graduates and 39 percent of non-CTE graduates enrolled in college within one year of graduation. Of these students, a higher percentage of CTE students (27%) enrolled in a two-year college than non-CTE students (18%). On the other hand, a lower percentage of CTE students enrolled in a four-year university than non-CTE students (74% vs 82%). College enrollment in two-year colleges differed by two percentage point between CTE elective and coherent sequence students (26% vs 28%). Similarly, a slightly higher percentage of coherent sequence students enrolled in a four-year university than elective students (74% vs 72%). Overall, college enrollment numbers within one year of graduation were lower for all student groups compared to students who graduated in 2018-19 (21 percentage points for CTE graduates vs. 18 percentage points for non-CTE graduates).

How did the Dallas ISD perform on CTE related accountability measures?

Over the past three years, the percentage of Dallas ISD graduates who were College, Career or Military Ready decreased by eight percentage points from 57 percent in 2017-18 to 49 percent in 2019-20. On CTE related measures for the same timeframe, the percentage of graduates who earned at least three dual credit hours in ELA or Mathematics or nine hours in any subject increased

by 10 percentage points (11% vs 21%) and the percentage of graduates who completed Level I or Level II certificates increased by four percentage point from 2017-18 to 2019-20 (0% vs 4%). The percentage of graduates who earned an industry-based certification increased by two percentage points (1% vs 3%) and the percentage of graduates who completed Individual Education Program and Workforce Readiness and met criterion score on an AP/IB exam increased by one percentage point (2% vs 3% and 22% vs 23%, respectively). Compared to other similar large urban districts in Texas, a lower percentage of Dallas ISD graduates were College, Career, or Military ready (49%) than graduates of Austin ISD (85%), El Paso ISD (73%), San Antonio ISD (68%), Fort Worth ISD (62%), and Houston ISD (62%).

What were teacher perceptions of the CTE program?

The CTE department conducts an annual survey to collect programmatic feedback from teachers to assess program strengths and identify areas of improvement. Insights gained from the survey are meant to help with future program development and program evaluation. The 2020-21 survey was administered by CTE staff from April 13 through May 13, 2021, using JotForm, an online survey-development tool. A total of 299 CTE teachers (40%) responded to the information request. Among the key-findings were that 98 percent of respondents agreed that the CTE program allows students to discover career opportunities they otherwise may not have considered. Eighty-one percent of respondents agreed that the CTE program provides students with basic training to obtain a job. Furthermore, 80 percent of respondents agreed that the CTE program motivates students to complete high school who otherwise are at risk of dropping out. Overall, 99 percent of CTE teachers indicated that CTE learning activities were aligned with current practices in business, industry, and/or technology. However, 68 percent of respondents also noted that the delivery of instruction in a hybrid teaching environment was impacted by technical issues.

RECOMMENDATIONS

Based on the key findings, the following recommendations are offered for stakeholders.

Continue to work with the IT Department on accurately tracking CTE participation.

Continue to support specialized CTE initiatives including Career Institutes and NAF Academies.

Continue to promote CTE students' completion of educational certificates and industry-based certifications.

2020-21

Evaluation of Career and Technical Education

DEPARTMENT OF EVALUATION AND ASSESSMENT

PROGRAM DESCRIPTION

The primary purpose of the Career and Technical Education (CTE) program is to prepare students for college and career success by providing the skills necessary to be competitive in a global economy. To meet this goal, the Dallas Independent School District (ISD) CTE department offers courses across 51 comprehensive CTE pathways to students in grades six through 12. Courses can be taken as one-off courses or in a program of study at participating middle and high schools. Students can also participate in CTE by taking courses through National Academy Foundation (NAF), Career Institutes (CI), or Early College High School (ECHS) programs. Through participation in CTE, students can earn diploma endorsements, industry certifications, educational certificates, and college credit hours. In addition, students can participate in paid internships. The CTE program is coordinated by the CTE Department² under Teaching and Learning. Program activities are partially funded through state CTE funds and a grant established by the Carl D. Perkins Career and Technical Education Act of 2006. In 2020-21, 42,029 students participated in CTE.

The Carl D. Perkins Vocational and Technical Education Act was first authorized by the federal government in 1984 and was most recently reauthorized as the Strengthening Career and Technical Education for the 21st Century (Perkins V) Act in 2018. The purpose of the Perkins V Act was to increase learner access to high-quality career and technical education programs to prepare students for the needs of employers in a variety of occupations. The Texas Legislature passed House Bill 5 (HB 5) in 2013 encouraging high school students to complete foundation curriculum plus additional coursework under one of five diploma endorsements, three of which are CTE-related: 1) business and industry; 2) public service; and 3) Science, Technology, Engineering, and Mathematics (STEM). HB 5 required the Dallas ISD to make additional coursework available to high school students for offered endorsement areas resulting in rapid CTE coursework expansion in the years following its passage. Beginning in 2017-18, House Bill 22 (HB22) required the Texas Education Agency (TEA) to evaluate the academic performance of school districts with a rating of A through F based on three domains: 1) student achievement, 2) school progress, and 3) closing the gaps. College, Career, and Military Readiness (CCMR) indicators account for 40 percent of the weighted performance of high school campuses and school districts in the student achievement domain. CCMR indicators include dual-credit course completion, associate degrees earned, and industry-based certifications earned, among others.³

² For the context of the 2019-20 report, Career Institutes are included with the CTE Department. However, the Dallas ISD organizational hierarchy lists Career Institutes directly under Teaching and Learning, parallel to the CTE Department.

³ 2019 Accountability Manual can be accessed at <https://tea.texas.gov/2019accountabilitymanual.aspx>

PURPOSE AND SCOPE OF THE EVALUATION

The purpose of this evaluation was to provide 1) context information related to key components of the program, and 2) data for campus, program, and district leadership to examine the implementation of the CTE program. On Friday March 13, 2020, in alignment with federal recommendations, the Governor of Texas issued a disaster proclamation certifying that the novel coronavirus COVID-19 posed an imminent threat of disaster for all counties in the state of Texas. In response to the COVID-19 pandemic, Dallas ISD transitioned students to at-home learning on March 23 following spring break (March 16 – 20) until the end of the 2019-20 school year. In 2020-21, Dallas ISD modified the district school calendar and changed from a six-week schedule to a nine-week schedule. Additionally, at-home learning was implemented districtwide for the first four weeks, which began on September 8, 2020. On October 22, 2020, the district announced that campuses would provide in-person and virtual learning throughout the rest of the school year, and parents could then choose for their children to participate in either in-person or virtual instruction. In-person and virtual instruction included both synchronous and asynchronous learning activities. The district also continued to follow and implement the Center for Disease Control (CDC) as well as state and local COVID-19 safety protocols. CTE dual credit students were further impacted by the closure of all Dallas College campuses and the move to asynchronous online learning. As a result, *Texas Success Initiative Assessment (TSIA)* testing at Dallas College was suspended and TSI requirements were waived through the Spring 2021 semester. Due to these COVID-19 pandemic related changes, the scope of the evaluation was limited to available data. This report addressed the following questions:

- What were the sources and amount of funding for the program?
- What were the components of the CTE program?
- What were the CTE student enrollment and demographic characteristics?
- What were the completion rates for CTE courses?
- How many industry certifications and educational certificates were earned?
- How many associate degrees were awarded to coherent sequence CTE students?
- What were the college enrollment rates for the Dallas ISD coherent sequence CTE students?
- How did the Dallas ISD perform on accountability indicators?
- What were teacher perceptions of the CTE program?

EVALUATION QUESTIONS AND RESULTS

What were the sources and amount of funding for the program?

Methodology

Budget information for the 2020-21 school year was provided by the Dallas ISD Budget Services Department (for state and local funds) on July 28, 2021 and the Dallas ISD Department of Special Revenue on June 23, 2021.

Results

TEA brochure (n.d.)⁴ noted that “Under the Texas Education Code (TEC), §42.154, a school district is eligible to receive weighted funding for each eligible full-time equivalent (FTE) student in average daily attendance (ADA) in an approved CTE program. In addition to this weighted funding, a school district is also eligible to receive a flat amount of \$50 per FTE enrolled in certain advanced CTE courses or programs”.⁵ In other words, districts receive 35 percent more funding for CTE students than other students. Weighted CTE and advanced course funding are calculated as follows:

$$\text{CTE weighted funding} = \text{eligible CTE FTEs} \times \text{district's adjusted allotment (AA)} \times 1.35$$

$$\text{CTE advanced course funding} = \text{eligible CTE FTEs} \times \$50$$

In 2020-21, TEA allocated a total of \$67,275,261 in CTE funding to the Dallas ISD, an increase of \$320,750 over 2019-20 TEA funding. Based on TEA requirements, 55 percent of CTE state funding had to be spent on the CTE program, and 45 percent could be allocated to the general operating fund. In general, CTE staff and teacher salaries, purchased curricula, equipment, and professional development were paid from the CTE portion, while some of the general operating funds were used to pay for operating costs of CTE classrooms, labs, and buildings. Of the TEA funds, the Dallas ISD allocated \$38,067,288 (57%) to the CTE program with 71 percent (\$27,148,895) covering payroll expenses (Table 1). In addition, the district received \$2,312,146 from the Perkins V Grant. No Early College P-TECH and Industry Cluster Innovative Academies (ICIA) grants were received in 2020-21. In total, CTE had a budget of \$40,379,434 in 2020-21 which included \$4,046,618 for the Career Institutes (CI). With \$3,256,884 Supplies and Materials were the largest expenditure (80%) of the CI budget, followed by Professional & Contracted Services (\$615,006, 15%).

Table 1: 2020-21 Dallas ISD CTE Budget

Description	TEA Funds	Perkins Grant	Total
Payroll Costs	27,148,895	\$990,426	28,139,321
Professional & Contracted Services	1,729,477	\$563,558	2,293,035
Supplies and Materials	8,141,950	\$528,957	8,670,907
Other Operational Costs	62,651	\$229,205	291,856
Capital Outlay – Land/Buildings/Equipment	984,315		984,315
Overall	38,067,288	\$2,312,146	40,379,434

Source: Dallas ISD Budget Services Department, 07/28/21. Dallas ISD Department of Special Revenue, 06/23/21.

Notes: Grey area indicates that no funds were attributed to this category.

⁴ Source: <https://capitol.texas.gov/tlodocs/84R/handouts/C4002016092909001/e19232c7-5a98-4919-a2b2-99677d0304c9.PDF>

⁵ The allotment applies to students grades nine through twelve enrolled in CTE program, and students with disabilities in grades seven through twelve enrolled in Career Technology for the Disabled (CTED) programs.

What were the components of the CTE program?

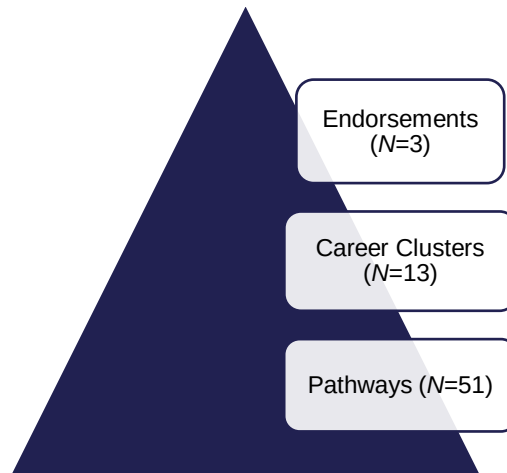
Methodology

Program documentation was provided by CTE program staff members. Board briefings from June 2018 through November 2020 provided additional information regarding Career Institutes. Information about program components were supplemented through informal interviews. Examination of program documents and informal interviews focused on program components including comprehensive CTE career clusters and pathways, NAF academies, Career Institutes, and credentials as well as CTE program support provided to elementary and middle schools.

Results

CTE course offerings were centered around three endorsements: Business and Industry, Public Service, and STEM. Within each of the endorsements, a student can select a career cluster, followed by a pathway (Figure 1).

Figure 1: 2020-21 Organizational Chart of Career and Technical Education Offerings



Source: CTE department program document, Fall 2019.

Eight career clusters are offered for Business and Industry, four career clusters for Public Service, and one career cluster for STEM, culminating in a total of 135 comprehensive CTE pathways (Figure 2). See also Appendix A for a full list of CTE pathways by campus.

Figure 2: 2020-21 Number of Career and Technical Education Endorsements by Career Clusters and Pathways

Enrollments by Career Clusters and Pathways													
①	Business and Industry								Public Services				STEM
②	Agriculture, Food & Natural Resources	Architecture & Construction	Arts, A/V Technology & Communications	Business, Marketing & Finance	Hospitality & Tourism	Information Technology	Manufacturing	Transportation, Distribution & Logistics	Education	Health Science	Human Services	Law & Public Safety	Science, Technology, Engineering & Mathematics
③	5	6	8	4	3	2	2	4	1	7	2	3	4

Source: CTE department program document, Fall 2021.

Notes: 1) Endorsements, 2) Career Clusters, 3) Pathways. The CTE program offered a total of 51 pathways in 2020-21.

For the 2020-21 school year, Perkins V redefined pathways, resulting in the merging of several previously offered pathways. In order to better align with the new programs of study created by TEA, the number of pathways offered dropped from 135 in 2019-20 to 51 comprehensive pathways in 2020-21. While CTE courses were previously offered as either a CTE coherent sequence of courses or electives, TEA revised the way they characterized CTE students in 2020-21. Starting with the 2020-21 school year, CTE student were identified by TEA as either CTE Participants, CTE Explorer, CTE Concentrator, or CTE Completer⁶ based on CTE course enrollment (Appendix B).

NAF Academies

Historically, NAF started at the Dallas ISD in the 1990s with Hospitality and Tourism themed academies. NAF academies were designed to be small learning communities that operate based on a “school within a school” model within the existing high school systems. Based around one of five high-growth career industries (Table 2), NAF academies provide students career-focused educational experiences within and outside the classroom to explore career interests and participate in career preparation activities including mock interviews and paid internships. The NAF curricula incorporates industry standards and practices, literacy strategies, and STEM integration, while emphasizing project-based learning. Students who successfully complete their academic courses, workplace projects, and internship can earn the NAFTrack Certification, indicating to post-secondary institutions and employers that the student is college- and career-ready. The NAFTrack Certified Hiring program is a commitment made by top American companies to consider these qualified students as eventual job applicants. All NAF academies have an open enrollment policy.

⁶ Generally, CTE Participants and Explorers are similar to students in prior years identified as CTE elective, whereas CTE Concentrators and Completers are similar to CTE Coherent Sequence students prior to 2020-21.

In 2019-20, the Dallas ISD, in cooperation with NAF, operated 48 NAF academies at 20 high schools⁷. In addition, two schools (Bryan Adams and Pinkston) went through their planning year to establish an academy of Hospitality and Tourism and an Academy of Information Technologies, respectively. Of these 48 academies, 32 academies (67%) were honored by NAF as distinguished academies⁸, compared to 23 academies in 2019-20. In addition, Madison Academy of Information Technology was recognized as NAF Model Academy. Each academy focuses on one of five themes: Engineering, Finance, Health Sciences, Hospitality and Tourism, and Information Technologies. The three most common career themes offered were Engineering ($N=12$), Information Technologies ($N=11$), and Finance ($N=11$). Most high schools ($n=16$, 80%) housing a NAF academy offered more than one career theme, with Conrad and Skyline high schools each hosting five academies (Table 2).

Table 2: 2020-21 Number of NAF Academies by Career Theme and Campus

Campus	Academy of Engineering	Academy of Finance	Academy of Health Sciences	Academy of Hospitality and Tourism	Academy of Information Technologies	Total Academies per Campus
<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>N</i>
Adams	Y		Y			2
Adamson		Y	Y			2
Carter		Y			Y	2
Conrad	Y	Y	Y	Y	Y	5
Hillcrest	Y		Y			2
IDEA		Y			Y	2
Jefferson	Y	Y		Y		3
Kimball	Y			Y		2
Lincoln	Y					1
Madison					Y	1
North Dallas	Y	Y			Y	3
Roosevelt			Y			1
Samuell					Y	1
Skyline	Y	Y	Y	Y	Y	5
South Oak Cliff	Y				Y	2
Spruce	Y	Y			Y	3
Sunset		Y	Y			2
White	Y		Y		Y	3
Wilmer-Hutchins		Y		Y	Y	3
Wilson	Y	Y		Y		3
Overall	12	11	8	6	11	48

Source: Correspondence with NAF coordinator 03/01/21.

Notes: Y=NAF Academy offered. IDEA=Innovation, Design and Entrepreneurship Academy.

NAF provides curricula for four of the five career themes, while the Engineering curriculum is provided by Project Lead The Way (PLTW). To teach the NAF curricula, teachers must be TEA CTE-certified. PLTW offered a two-week long teacher certification training to schools offering the engineering curriculum for the first time. PLTW further utilized the train the trainer model, allowing teachers who were trained by PLTW to train other teachers at their campuses. A total of 112 teachers taught NAF

⁷ Originally, documentation provided by CTE staff indicated 49 NAF academies, however NAF academy count was updated to 48 by the evaluator after conducting student enrollment analyses.

⁸ Distinguished academies have achieved NAF's highest level of achievement. A total of 138 academies in the NAF network have reached Distinguished level (NAF, 2020).

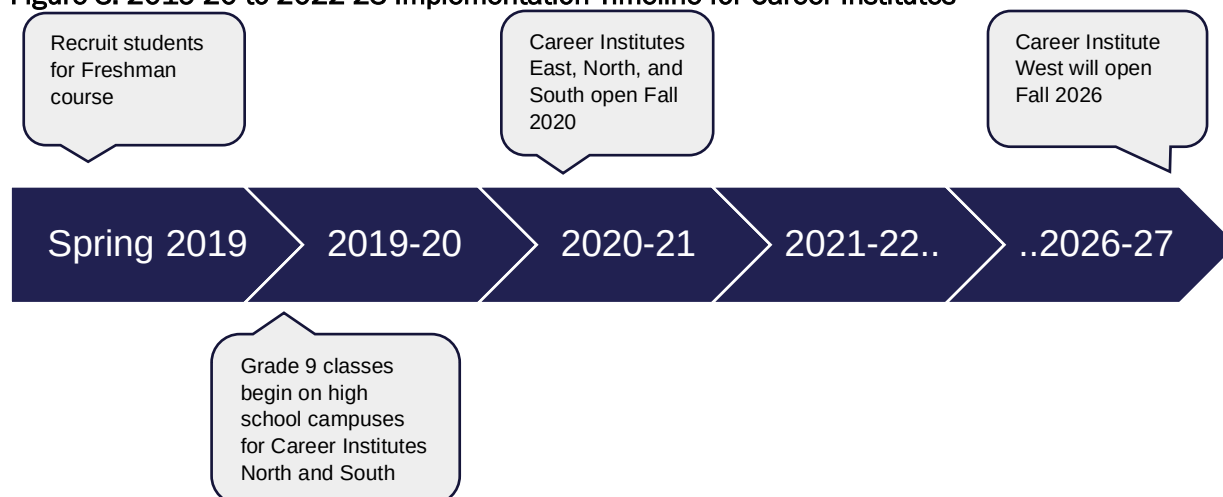
courses in 2020-21 (four more than in 2019-20). The number of teachers per campus varied (from one to 14 teachers) based on the number of NAF academies offered and number of students enrolled. On average, two teachers were employed by each NAF academy. In preparation for the 2020-21 school year, teachers participated in Dallas ISD's virtual professional development (PD) sessions and were encouraged to participate in the NAF 2020 Virtual Conference on July 13-14, 2020. On November 17, 2020, an additional PD session was held to provide training on the Odysseyware, an online internship preparation course that juniors are required to complete prior to participating in NAF summer internships. Twenty-three teachers participated in this training.

In 2020-21, the Dallas ISD NAF coordinator held three parent meetings to inform parents about paid internship opportunities available to students for the 2021 summer break. Parent meetings were held on December 15, 2020, ($n=82$), January 13, 2021 ($n=50$), and on February 4, 2021, ($n=50$). Overall, the NAF coordinator reported that 26 companies offered internship opportunities to 211 NAF students. Fourteen of the 26 companies offered virtual internships, six companies offered hybrid internships, and six companies offered in-person internships.

Career Institutes

Career Institutes provide high school students the opportunity to obtain relevant workforce readiness skills and post-secondary education in high demand vocations to earn a living wage after graduating high school. Established in 2018, five campus-based Career Institutes operated during the 2018-19 school year (Grimberg, 2019). It was noted at a Board Briefing (June 7, 2018) the intention was to establish a Career Institute at every Dallas ISD high school, each serving an in-demand trade. Campus-based Career Institutes were either to utilize existing CTE programs and elevate them by formalizing relationships with industry partners and the Dallas College, formally known as the Dallas College District, or to establish new programs where no prior CTE program serving an in-demand trade existed.

In a strategic shift in 2019, Dallas ISD moved away from campus-based Career Institutes to a system of stand-alone Career Institutes. None of the original five campus-based Career Institutes were rolled into the new Career Institutes system, and henceforth operate as regular CTE programs. The newly established Career Institutes function as a hub serving their surrounding high schools. By 2026-27, Dallas ISD plans to establish a total of four Career Institutes (Figure 3), one for each quadrant of the city (north, south, east, and west).

Figure 3: 2019-20 to 2022-23 Implementation Timeline for Career Institutes

Source: Interviews with CI Directors, March 2021.

CTE program documents indicated that “these state-of-the-art facilities will feature real-world learning spaces and industry- standard equipment, providing students access to post-secondary education, training, and career pathways that may be inaccessible on their home campus”.⁹ Pathways offered at Career Institutes are tuition free for all Dallas ISD students and have open enrollment. Students will take Career Institute pathway courses for half a day, twice a week at dedicated Career Institute campuses. Transportation of students from and to their home campus is provided free of charge. According to the Dallas ISD Board Update presented by the Executive Director of STEM on March 7, 2019, structuring the Career Institutes as hubs has several advantages, including:

- *Cost-effectiveness:* Centralizing specialized equipment reduces the number of hours equipment is idle, allows for easier maintenance, and increases the number of students who can attend each class.
- *Student choice:* Home campuses can now offer any pathway available at Career Institutes; therefore, students will have access to more pathways, career endorsements, and industry partners.
- *Student recapture and retention:* Because of the unique value that they bring, Career Institutes will help attract and retain students in the Dallas ISD.

Construction-related pathways were among the first pathways offered by Career Institutes because they share the same principle course. Construction-related pathways included construction and carpentry; interior design; plumbing and pipefitting; electrical and solar technology; and heating ventilation, air conditioning and refrigeration. Furthermore, industry sources indicated that with a current shortage of up to 20,000 skilled workers, construction will be a vocation in high demand in the Dallas Metroplex until at least 2030.¹⁰ Career Institute leadership has extended existing pathway offerings for 2020-21 school year by

⁹ Career Institutes brochure Developing Leaders Building Futures and March 7, 2019 Dallas ISD Board Briefing on Career Institutes.

¹⁰ September 2019 Dallas ISD Board Update on Career Institutes.

opening Aviation Flight, Mechatronics / Advanced Manufacturing, and Cybersecurity pathways. (See Appendix B for a full list of 2020-21 Career Institute Pathways.)

Table 3: 2020-21 Feeder High Schools for Career Institutes East, South and North

Career Institute East	Career Institute North	Career Institute South
Adams	Conrad	Adamson
Lincoln	Hillcrest	Carter
Madison	Jefferson	Kimball
Samuel (added for 2021-22)	North Dallas	Molina
Spruce	White	Pinkston
Woodrow Wilson		Roosevelt
		South Oak Cliff
		Sunset

Source: Correspondence with CI Directors, Spring 2021.

In 2020-21, a total of 41 teachers (eight for CI East, 17 CI North, and 16 for CI South) taught 12 courses¹¹ at the CI campuses. While teachers at the Career Institutes were masters of their trade, under House Bill 1842, (i.e. District of Innovation), teachers were not required to possess a valid TEA teaching certificate. Overall, 51 percent of teachers ($n=21$) taught under the District of Innovation exemption. In order to help these teachers master pedagogy, Career Institute staff held PD sessions throughout the 2020-21 school year. Topics included classroom management skills, ESL strategies, lesson planning, and Career Institutes updates. CI East staff reported to have conducted 75 PD sessions by February 8, 2021. Attendance ranged between 2 and 14 Career Institute teachers and staff per PD session.

Early College High Schools

In 2020-21, the Dallas ISD operated 25 ECHSs, including seven traditional ECHSs and 18 Pathways in Technology Early College High Schools (P-TECH). Each P-TECH was paired with an institution of higher learning (IHE) and one or more industry partners. Students enrolled in a P-TECH can earn up to 60 tuition-free, dual-credit hours and graduate with an Associate Degree of Applied Science in one of 32 fields (see Appendix C). Out of the 60 dual-credit hours, students can take up to 18 credit hours of CTE related coursework. P-TECH students also have an opportunity to earn industry-based certifications and educational certificates in their selected career pathways that are attractive to employers and gain valuable workplace skills through one of the industry partners.

Credentials

Certificates are types of credentials that are predominately awarded by two-year institutions of higher learning for the satisfactory completion of a workforce education program. TEA quoted a 2013 study by Georgetown University that stated certificates have the largest growth among college credentials over the past 30 years.¹² Several levels of certificates exist in Texas, including Enhanced Skills or Occupational Skills Certificates (between nine to 15 credit hours), Level I certificates (between 15 to 42 credit hours),

¹¹ Language courses were not included.

¹² Understanding Credentials in Texas: Certificates & Certifications (2018).

Level II certificates (between 30 to 51 credit hours), and Advanced Technical Certificates (requiring a previously awarded associate or bachelor degree and 16 to 50 credit hours).

Certifications are types of credentials that are usually granted by an organization, such as a trade association, validating that an individual possesses certain skills. An occupation may have multiple certifications with different levels of expertise. Unlike certificates, certifications are often time-limited credentials and need to be renewed periodically. Since 2017-18, school districts are required to report student-level data to TEA about industry-based certifications that meet TEA accountability requirements. The 2020-21 list of approved industry-based certifications for the A-F accountability system included 244 certifications within 14 primary career clusters.

CTE Implementation in Middle Schools

Forty-Three out of 45 middle schools (96%) offered one or more CTE courses in 2020-21 (a 13% increase from 83% in 2019-20). Of the 21 CTE courses offered, five were considered foundational courses and qualified for middle school credit, while 16 courses could be taken for high school credit. Five of the 21 courses utilized PLTW Gateway curricula¹³. CTE department leadership highly recommended all middle school students take the College and Career Readiness class, and one of the four Investigating Careers classes in grade eight to have a better understanding of CTE options in high school. Thirty-one middle schools (69%) offered the College and Career Readiness class and 23 middle schools (51%) offered one or more of the Investigating Careers classes. The Dallas ISD CTE Department provides support to those middle schools interested in opening CTE courses by facilitating curricula implementation, coordinating the training of teachers and the purchase of supplies. It is important to note that providing CTE services to middle school students does not increase the amount of funds the Dallas ISD receives from TEA for its CTE services.

What were the enrollment characteristics of CTE students?

Methodology

CTE students were identified by extracting student information numbers (IDs) from the Dallas ISD course enrollment file dated August 16, 2021 based on CTE course numbers provided by the CTE department (November 16, 2021). CTE student IDs were merged with the end-of-year demographic file dated June 6, 2021 to identify current enrollment status and demographic information. Frequency analyses were conducted to report CTE enrollment data based on demographic characteristics and grade-level enrollment by CTE programs, and grade-level enrollment by CTE status. In addition, frequency analyses were conducted to report CTE enrollment numbers by campus for NAF academies and Career Institutes. Prior year CTE enrollment numbers were taken from Lorenz (2020).

¹³ Project Lead The Way offers three types of curricula, PLTW Launch (Grades K-5), PLTW Gateway (Grades 6-8), and PLTW Programs (Grades 9-12).

Results

During the 2020-21 school year, 42,029 students participated in CTE, including 12,862 middle school students and 29,167 high school students (Table 4), an increase of 10 percent ($n=3,954$) compared to 2019-20. Overall, 59 percent of all middle and high school students were enrolled in a CTE course. Forty-one percent of middle school students were enrolled in a CTE course, an increase of 11 percentage points over 2019-20 (30%, Lorenz 2020). Middle school CTE enrollment percentage ranged from 13 percent in grade six to 56 percent in grade eight. High school CTE enrollment percentage ranged from 74 percent in grade 9 to 78 percent in grade 11. Overall, 73 percent of high school students were enrolled in CTE courses, indicating that CTE enrollment in high schools increased by two percentage points compared to 2019-20 (71%, Lorenz 2020).

Table 4: 2020-21 Student Enrollment by Grade

Grade	Non-CTE		CTE		Total N
	n	%	n	%	
Middle School					
Grade 6	9,154	87.5	1,312	12.5	10,466
Grade 7	5,017	47.4	5,557	52.6	10,574
Grade 8	4,664	43.8	5,993	56.2	10,657
High School					
Grade 9	4,010	35.6	7,251	64.4	11,261
Grade 10	2,792	25.8	8,047	74.2	10,839
Grade 11	2,059	22.5	7,098	77.5	9,157
Grade 12	1,990	22.7	6,771	77.3	8,761
Overall					
Overall Middle School	18,835	59.4	12,862	40.6	31,697
Overall High School	10,851	27.1	29,167	72.9	40,018
Overall	29,686	41.4	42,029	58.6	71,715

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

As mentioned previously, TEA re-designated CTE students as either CTE Participants, CTE Explorers, CTE Concentrators, or CTE Completers in 2020-21. In 2020-21, 45 percent of the 42,029 CTE students were CTE Participants ($n=18,963$), 23 percent were CTE Explorers ($n=9,845$), 22 percent were Concentrators ($n=9,417$), and nine percent were CTE Completers ($n=3,804$, Table 5). All but three middle school students were either CTE Participants ($n=12,387$, 96%) or CTE Explorers ($n=472$, 4%). The highest number of high school students were CTE Concentrators ($n=9,414$, 32%) and CTE Explorers ($n=9,373$, 32%), followed by CTE Participants ($n=6,576$, 23%) and CTE Completers ($n=3,804$, 13%). More high school students were either CTE Participants or CTE Explorers than CTE Concentrators or CTE Completers in grade nine (95% vs 5%) and grade 10 (62% vs 38%). However, more students were identified as CTE Concentrators or CTE Completers in grade 11 (66% vs 34%) and grade 12 (75% vs 25%).

Table 5: 2020-21 CTE Student Enrollment by Status

Grade	CTE Participant		CTE Explorer		CTE Concentrator		CTE Completer		Total <i>N</i>
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Middle School									
Grade 6	1,312	100.0							1,312
Grade 7	5,464	98.3	93	1.7					5,557
Grade 8	5,611	93.6	379	6.3	3	0.1			5,993
High School									
Grade 9	4,351	60.0	2,527	34.9	372	5.1	1	0.0	7,251
Grade 10	1,348	16.8	3,634	45.2	2,924	36.3	141	1.8	8,047
Grade 11	512	7.2	1,909	26.9	3,586	50.5	1,091	15.4	7,098
Grade 12	365	5.4	1,303	19.2	2,532	37.4	2,571	38.0	6,771
Overall									
Overall Middle School	12,387	96.3	472	3.7	3	0.0			12,862
Overall High School	6,576	22.5	9,373	32.1	9,414	32.3	3,804	13.0	29,167
Overall	18,963	45.1	9,845	23.4	9,417	22.4	3,804	9.1	42,029

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: A grey box indicates that no students were identified. Moreover, students cannot be classified as coherent sequence students until grade nine.

Enrollment by Career Cluster

In 2020-21, 42,029 middle and high school students enrolled in one to five career clusters (*mean*=1.2). This remained stable compared to 2019-20. Career clusters with the highest enrollment were Business Management & Administration (29%),¹⁴ followed by Science, Technology, Engineering & Mathematics (20%), and Arts A V Technology Communications (14%, Table 6). Student enrollment data by school level and status can be found in Appendix D, Table 1.

Districtwide, CTE students took the highest percentage of courses within the Business Management & Administration cluster (24%),¹¹ followed by the Science, Technology, Engineering & Mathematics cluster (16%), and Arts A V Technology Communications (9%, Table 7). The CTE groups with the highest enrollment within the Business Management & Administration cluster were CTE Concentrators and CTE Explorers (36% and 28%, respectively). Additional CTE course enrollment data by school level and status can be found in Appendix D, Table 2.

¹⁴ General Elective CTE Courses were not noted as it is not an actual career cluster but catch all category for courses that can serve more than one cluster.

Table 6: 2020-21 CTE Student Enrollment by Career Cluster

Career Cluster	CTE Participant <i>n</i>	CTE Explorer <i>n</i>	CTE Concentrator <i>n</i>	CTE Completer <i>n</i>	Total CTE Enrollment <i>N</i>	Enrollment by Cluster %
Business Marketing Finance	3,259	3,770	3,912	1,051	11,992	28.5
General Elective CTE Courses*	7,703	369	224	404	8,700	20.7
Science, Technology, Engineering & Mathematics	3,613	2,320	2,111	511	8,555	20.4
Arts A V Technology Communications	2,982	1,201	1,082	461	5,726	13.6
Information Technology	1,235	1,783	1,310	441	4,769	11.3
Human Services	1,683	1,012	996	490	4,181	9.9
Health Science	317	739	981	664	2,701	6.4
Law Public Service	326	681	1,078	571	2,656	6.3
Hospitality Tourism	415	602	716	382	2,115	5.0
Architecture Construction	404	896	353	312	1,965	4.7
Transportation Distribution Logistics	96	339	237	223	895	2.1
Education Training	126	177	305	138	746	1.8
Agriculture Food Natural Resources	199	183	181	78	641	1.5
Manufacturing	89	187	123	23	422	1.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: Total number of CTE students enrolled in 2019-20 was 42,029. Column percent does not sum to 100percent as student could enroll in more than one career cluster. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A V = Audio Video.

Table 7: 2020-21 CTE Course Enrollment by Career Cluster

Career Cluster	CTE Participant <i>n</i>	CTE Explorer <i>n</i>	CTE Concentrator <i>n</i>	CTE Completer <i>n</i>	Total CTE Enrollment <i>N</i>	Enrollment by Cluster %
Business Marketing Finance	3,490	4,782	5,827	2,062	16,161	24.0
Science Technology Engineering Mathematics	4,216	2,969	2,689	790	10,664	15.8
General Elective CTE Courses	8,520	379	238	422	9,559	14.2
Arts A V Technology Communications	3,043	1,261	1,207	787	6,298	9.3
Information Technology	1,252	1,922	1,453	641	5,268	7.8
Human Services	1,717	1,152	1,229	628	4,726	7.0
Health Science	320	785	1,278	1,450	3,833	5.7
Law Public Service	328	764	1,361	898	3,351	5.0
Architecture Construction	406	967	440	536	2,349	3.5
Hospitality Tourism	417	633	807	442	2,299	3.4
Transportation Distribution Logistics	97	356	258	226	937	1.4
Education Training	126	191	350	179	846	1.3
Agriculture Food Natural Resources	201	201	216	94	712	1.1
Manufacturing	89	219	135	29	472	0.7

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: Student could enroll in more than one career cluster. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A V = Audio Video.

NAF Academies Enrollment

Overall, 7,754 students enrolled in 48 NAF Academies in 2020-21, a decrease of 1,475 students at 49 NAF Academies in 2019-20 (Table 8). Analyses indicated that five percent of NAF participants ($n=379$) enrolled in more than one academy (max academies enrolled=3). The academies with the highest enrollment numbers for 2020-21 were Academy of Finance ($n=2,227$), followed by Academy of Information Technologies ($n=2,091$), and Academy of Engineering ($n=1,555$).

The top three schools with NAF enrollment in 2020-21 were Skyline ($n=1,262$), Jefferson ($n=649$), and North Dallas ($n=545$). Wilson had the largest enrollment of any Academy of Engineering ($n=241$). The school with the largest enrollment of any Academy of Finance was North Dallas ($n=321$), of any Academy of Health Sciences was Adams ($n=227$), of any Academy of Hospitality and Tourism was Jefferson ($n=258$), and of any Academy of Information Technologies was Skyline ($n=456$).

Table 8: 2020-21 Dallas ISD NAF Student Enrollment

NAF Academy	AOE <i>n</i>	AOF <i>n</i>	AOHS <i>n</i>	AOHT <i>n</i>	AOIT <i>n</i>	Overall <i>N*</i>	$\bar{x}$
Skyline	195	314	202	160	456	1,262	1.1
Jefferson	196	254		258		649	1.1
North Dallas	134	321			188	545	1.2
Wilson	241	234		96		542	1.1
Spruce	101	131			307	529	1.0
Adams	218		227			439	1.0
Wilmer-Hutchins		147		185	100	381	1.1
Conrad	111	108	71	99	38	403	1.1
Sunset		253	165			414	1.0
White	50		207		142	384	1.0
Adamson		204	163			356	1.0
Samuell			0		346	346	1.0
Hillcrest	176		125			291	1.0
Kimball	113			169		280	1.0
South Oak Cliff	1				272	273	1.0
Carter		144			75	219	1.0
Madison					153	153	1.0
Roosevelt			139			139	1.0
IDEA		117			14	130	1.0
Lincoln	19					19	1.0
Overall	1,555	2,227	1,299	967	2,091	7,754	1.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

Note: Student could enroll in more than one career cluster. *Unique student enrollment. A grey box indicates that no career cluster was offered. AOE=Academy of Engineering, AOF=Academy of Finance, AOHS=Academy of Health Sciences, AOHT=Academy of Hospitality and Tourism, AOIT=Academy of Information Technologies. IDEA=Innovation, Design and Entrepreneurship Academy

Career Institutes Enrollment

In 2020-21, 2,043 students enrolled in Career Institutes, an increase of 1,283 students from 2019-20 (Table 9). Enrollment ranged from 25 students (Lincoln in CI East) to 212 students (Pinkston in CI South). Overall, Career Institute students enrolled in 2,416 courses and passed 2,000 (83%). In its second year, courses were geared towards grade nine ($n=1,089$) and grade ten ($n=714$). However, counselors

enrolled a total of 240 students in grades 11 ($n=161$) and 12 ($n=79$), meaning 12 percent of students were in a grade level higher than grade 10.

Table 9: 2020-21 Career Institute Enrollment by Feeder High Schools

Career Institute East N=443		Career Institute North N=662		Career Institute South N=938	
Home Campus	N	Home Campus	N	Home Campus	N
Adams	103	Conrad	76	Adamson	32
Lincoln	25	Hillcrest	158	Carter	139
Madison	84	Jefferson	145	Kimball	77
Spruce	147	North Dallas	164	Molina	132
Woodrow Wilson	84	White	119	Pinkston	196
				Roosevelt	32
				South Oak Cliff	181
				Sunset	149

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

Student Characteristics

The ethnic composition of district CTE students was similar to middle and high school students not enrolled in the CTE program (percentages were within three percentage points). A smaller percentage of CTE students received special education services (8%) compared to non-CTE students (13%). Forty-two percent (an increase of three percentage points over 2019-20) of CTE students were English learners compared to 44 percent of non-CTE students and 18 percent of CTE students were or Talented and Gifted (TAG) eligible compared to 20 percent of non-CTE students. In contrast, there were slightly more economically disadvantaged CTE students (84%) than non-CTE students (83%). In 2020-21, CTE students were at the same risk of dropping out than non-CTE students (66%), a reduction of 11 percentage points over 2019-20.

Table 10: 2020-21 Student Characteristics

	MS CTE (n=12,862)		HS CTE (n=29,167)		District All CTE (N=42,029)		District Non-CTE (N=29,686)	
	N	%	N	%	N	%	N	%
Grade								
Grade 6	1,312	10.2			1,312	3.1	9,154	30.8
Grade 7	5,557	43.2			5,557	13.2	5,017	16.9
Grade 8	5,993	46.6			5,993	14.3	4,664	15.7
Grade 9			7,251	24.9	7,251	17.3	4,010	13.5
Grade 10			8,047	27.6	8,047	19.1	2,792	9.4
Grade 11			7,098	24.3	7,098	16.9	2,059	6.9
Grade 12			6,771	23.2	6,771	16.1	1,990	6.7
Gender								
Female	6,112	47.5	14,317	49.1	20,429	48.6	15,110	50.9
Male	6,750	52.5	14,850	50.9	21,600	51.4	14,576	49.1
Race / Ethnicity								
Asian	97	0.8	249	0.9	346	0.8	333	1.1
African American	2,550	19.8	5,974	20.5	8,524	20.3	6,022	20.3
Hispanic	9,444	73.4	21,481	73.6	30,925	73.6	20,937	70.5
White	529	4.1	891	3.1	1,420	3.4	1,709	5.8
Other	242	1.9	572	2.0	814	1.9	685	2.3
Student Characteristics								
At Risk Status	8,731	67.9	18,764	64.3	27,495	65.4	19,482	65.6
Eco Dis Status	11,147	86.7	24,327	83.4	35,474	84.4	24,530	82.6
English Learner	6,254	48.6	11,485	39.4	17,739	42.2	13,122	44.2
Special Education	1,157	9.0	2,336	8.0	3,493	8.3	3,852	13.0
TAG Eligible	2,894	22.5	4,680	16.0	7,574	18.0	5,930	20.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

Note: A grey box indicates that no students were enrolled in that grade level. MS=middle school, HS=high school, Eco Dis=economically disadvantaged. Column percentages may not sum to 100 due to rounding.

High school students were able to participate in traditional CTE course offerings and enroll in specialized CTE programs such as the Career Institutes, NAF Academies, and ECHSs. Of the 29,167 high school students who enrolled in CTE courses in 2020-21, 13,709 students enrolled in one or more of these specialized high school CTE programs. Although 93 percent of the 13,709 students enrolled in only one of these programs, seven percent enrolled in two or three programs. For example, 42 students (0.3%) enrolled in courses through the Career Institutes, the NAF Academies, and the ECHSs (Table 11). Although fewer students enrolled in a specialized CTE program in 2020-21 than 2019-20 ($n=13,709$ vs $n=14,041$), more students enrolled in two or more programs in 2020-21 ($n=1,023$ vs $n=563$, respectively).

Table 11: 2020-21 Students Enrolled in One or More CTE High School Program

Enrolled in	N	%
One Program	12,686	92.5
Two Programs	981	7.2
Three Programs	42	0.3
Overall	13,709	100.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

Note: CTE high school programs analyzed: Career Institutes, NAF Academies, and Early College High Schools.

A comparison of these specialized CTE high school programs found that more male students than female students enrolled in these programs, except for the ECHS program, where female students were in the majority (57%, Table 12). Among all high school CTE programs, Career Institutes had the highest percentage of at-risk students (80%) followed by NAF academies (72%), and the ECHS Program (50%). Moreover, CTE students enrolled in Career Institutes had the highest percentage of economically disadvantaged students (89%) and the highest percentage of English learners (51%), while having the lowest percentage of TAG-eligible students (8%). CTE students in the ECHS program had the lowest percentage of special education students (3%).

Table 12: 2020-21 Student Characteristics by CTE Program

Variable	Career Institutes (n=2,043)		NAF Academies (n=7,754)		ECHS Program (n=4,977)	
	N	%	N	%	N	%
Grade Level						
Grade 9	1,089	53.3	2,495	32.2	890	17.9
Grade 10	714	34.9	2,294	29.6	1,495	30.0
Grade 11	161	7.9	1,741	22.5	1,386	27.8
Grade 12	79	3.9	1,224	15.8	1,206	24.2
Gender						
Female	709	34.7	3,767	48.6	2,858	57.4
Male	1,334	65.3	3,987	51.4	2,119	42.6
Race / Ethnicity						
Asian	13	0.6	51	0.7	27	0.5
African American	483	23.6	1,715	22.1	1,044	21.0
Hispanic	1,475	72.2	5,539	71.4	3,757	75.5
White	34	1.7	275	3.5	63	1.3
Other	38	1.9	174	2.2	86	1.7
Student Characteristics						
At Risk Status	1,639	80.2	5,582	72.0	2,507	50.4
Eco Dis Status	1,815	88.8	6,521	84.1	4,264	85.7
English Learner	1,032	50.5	3,469	44.7	1,741	35.0
Special Education	260	12.7	684	8.8	127	2.6
TAG Eligible	164	8.0	877	11.3	1,210	24.3

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21.

Note: Eco Dis=economically disadvantaged. Column percentages may not sum to 100 due to rounding.

What were the completion rates for CTE courses?

Methodology

CTE course enrollment and completion rates were calculated by merging the End-of-Year CTE program enrollment data and district course file dated August 16, 2021. Courses were defined as complete if a student earned credit for the course. Frequency analyses were conducted to report the completion rates for all CTE courses by career cluster and CTE status, and for dual-credit course enrollment by campus and CTE status.

Results

In 2020-21, CTE middle and high school students passed 81 percent of all CTE courses, compared to 93 percent in 2019-20 (Table 13). Passing rate by career clusters ranged from 69 percent (Agriculture Food Natural Resources) to 94 percent (Health Science). CTE Completers had the highest overall passing rate of 94 percent followed by CTE Concentrators (89%), and CTE Participants (77%). CTE Explorers had the lowest overall passing rate of 70 percent. Additional CTE course completion data by school level and status can be found in Appendix E.

Table 13: 2020-21 CTE Course Enrollment and Completion Rates by Career Cluster and CTE Status

Career Cluster	CTE Participant		CTE Explorer		CTE Concentrator		CTE Completer		Total CTE Enrollment	
	N	%	N	%	N	%	N	%	N	%
Health Science	320	93.1	785	88.2	1,278	93.0	1,450	97.0	3,833	93.5
Hospitality Tourism	417	88.5	633	74.6	807	91.9	442	98.0	2,299	87.7
Law Public Service	328	83.5	764	74.5	1,361	88.0	898	97.4	3,351	87.0
Architecture Construction	406	82.3	967	78.9	440	91.1	536	97.6	2,349	86.0
Transportation Distribution Logistics	97	81.4	356	73.0	258	89.5	226	98.2	937	84.5
Manufacturing	89	85.4	219	74.0	135	94.1	29	96.6	472	83.3
Science Technology Engineering Mathematics	4,216	75.3	2,969	73.7	2,689	90.7	790	94.2	10,664	80.1
Business Marketing Finance	3,490	77.9	4,782	65.6	5,827	89.4	2,062	89.3	16,161	79.9
Arts A V Technology Communications	3,043	79.6	1,261	65.7	1,207	87.4	787	91.6	6,298	79.8
General Elective CTE Courses*	8,520	77.5	379	76.5	238	76.9	422	96.4	9,559	78.3
Education Training	126	76.2	191	50.8	350	85.7	179	92.2	846	77.8
Information Technology	1,252	78.6	1,922	66.0	1,453	85.3	641	86.7	5,268	76.9
Human Services	1,717	66.2	1,152	64.7	1,229	86.3	628	93.9	4,726	74.7
Agriculture Food Natural Resources	201	56.7	201	49.8	216	86.6	94	98.9	712	69.4
Overall	24,222	77.1	16,581	69.8	17,488	89.0	9,184	93.7	67,475	80.7

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: N=Enrollment Number %=Completion Percentage. Student could enroll in more than one career cluster. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A V = Audio Video.

In 2020-21, 4,977 Dallas ISD students participated in 10,451 CTE dual credit courses of which they passed 8,247 courses (79%). Thirty-five percent of CTE students who took dual credit courses were CTE Explorers ($n=1,741$), followed by CTE Participants ($n=1,322$, 27%), CTE Concentrators ($n=1,153$, 23%), and CTE Completers ($n=761$, 15%).

The number of dual credit course taken by campus varied from 2 dual credit courses (Townview SEM) to 879 dual credit courses (Townview Health, Table 14). Overall, 79 percent ($n=8,247$) of dual credit courses were completed, down 11 percentage points from 2019-20. Dual credit completion rates ranged from 67 percent (Wilson) to 70 percent (Adams). CTE Completers passed dual credit course at a higher rate than all other CTE student groups (89%). Although, CTE dual credit course enrollment has slightly increased from 2019-20 school year where 4,665 CTE students enrolled in 10,237 CTE dual credit courses (Lorenz, 2020), completion rates have decrease from 90 percent (2019-20) to 79 percent (2020-21).

Table 14: 2020-21 CTE Dual Credit Course Completion Rates by Campus and CTE Status

Career Cluster	CTE Participant		CTE Explorer		CTE Concentrator		CTE Completer		Total CTE Enrollment	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Adams	34	64.7	104	58.7	205	91.2	11	100.0	354	79.4
Adamson	*	*	80	21.3	63	92.1	149	62.4	293	57.7
Carter	*	*	116	69.8	63	77.8	88	78.4	272	73.5
Conrad	55	83.6	116	87.9	100	73.0	399	95.2	670	89.7
Garza	43	88.4	157	91.1	38	100.0			238	92.0
Gilliam	92	85.9	181	86.2	30	100.0			303	87.5
Hillcrest	21	95.2	44	61.4	95	94.7	70	88.6	230	86.5
IDEA			12	100.0	22	81.8	9	88.9	43	88.4
Jefferson	65	81.5	96	50.0	208	74.0	289	85.8	658	76.4
Kimball	*	*	196	59.7	68	55.9	27	96.3	293	62.5
Lassiter	50	90.0	50	90.0	6	100.0			106	90.6
Lincoln	18	11.1	87	12.6	46	82.6	188	93.1	339	66.7
Madison	50	32.0	97	19.6	60	28.3	144	58.3	351	38.7
Molina	32	53.1	128	47.7	242	89.7	231	99.1	633	82.8
North Dallas	79	38.0	131	57.3	93	77.4	28	92.9	331	61.3
North Lake EC	6	100.0	13	76.9	6	100.0			25	88.0
Pinkston	22	77.3	148	29.7	91	46.2	286	78.0	547	59.6
Roosevelt	24	45.8	76	53.9	33	18.2	91	87.9	224	61.6
Samuell	18	94.4	149	87.2	48	83.3			215	87.0
Seagoville HS	*	*	40	47.5	357	89.6	285	95.4	685	89.3
Skyline	62	69.4	50	50.0	76	84.2	35	85.7	223	72.6
South Oak Cliff	13	15.4	77	46.8	104	69.2	151	78.8	345	66.4
Spruce	13	53.8	83	51.8	122	96.7	225	93.3	443	85.3
Sunset	76	57.9	193	88.1	43	97.7	12	91.7	324	82.4
Townview Business			144	84.7	265	94.3	38	94.7	447	91.3
Townview Education							61	85.2	61	85.2
Townview Health	67	86.6	53	84.9	211	94.8	548	99.6	879	96.6
Townview SEM					*	*			*	*
White	33	81.8	56	62.5	259	93.8	8	75.0	356	87.4
Wilmer-Hutchins HS	140	62.1	191	83.2	72	83.3	151	99.3	554	82.3
Wilson	*	*	*	*	*	*			6	66.7
Overall ¹	1,027	67.7	2,870	64.6	3,030	84.2	3,524	89.3	10,451	78.9

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: SEM = Science and Engineering. IDEA = Innovation, Design and Entrepreneurship Academy. *N* indicates the number of students enrolled in a dual credit course. % indicates the percentage of students who completed the dual credit courses. A grey box indicates that no students were enrolled.

*Data was masked as five or fewer students belonged to these categories. ¹ Data includes one student at Walker.

What were the academic outcomes of CTE students on STAAR EOC exams?

Methodology

Although STAAR EOC performance was used to examine the academic knowledge of the CTE participants, it is important to note that participation in CTE courses may not have a direct impact on the core content knowledge of students as measured by the STAAR EOCs. Therefore, this information was presented to provide a comprehensive analysis of CTE students' achievements.

Students are grouped into four performance categories based on established STAAR EOC scale scores, including: Does Not Meet Grade Level (Does Not Meet), Approaches Grade Level or Above (Approaches+), Meets Grade Level or Above (Meets+), and Masters Grade Level (Masters). STAAR EOC assessment data were extracted from the STAAR EOC data file dated July 29, 2021 and merged with the end-of-year CTE program enrollment data dated June 7, 2021. Frequency analyses were conducted to report the percentage of CTE students who attained the Approaches+ and Meets+ performance standards grouped by STAAR EOC subtest and CTE status.

Results

Overall, 15,013 out of the 29,167 CTE high school students took one or more STAAR EOC exams in 2020-21 (51%). The subject test with the highest participation count was English II ($n=7,734$), followed by U.S. History ($n=6,600$). Majority of CTE students met the Approaches+ benchmark for U.S. History (85%), followed by Biology (62%) and English II (60%). CTE Concentrators participated in the greatest number of STAAR EOC exams, while CTE Completers met the Approaches + benchmark most often (75%) across all subject tests, followed by CTE Concentrators (68%).

Table 15: 2020-21 Percentage of CTE Students Meeting STAAR EOC Approaches Grade Level or Above

STAAR EOC Subject	CTE Participant		CTE Explorer		CTE Concentrator		CTE Completer		Overall CTE	
	N	%	N	%	N	%	N	%	N	%
Approaches Grade Level or Above										
Algebra I	87	27.6	294	29.3	184	37.5	16	31.3	581	31.7
Biology	180	48.9	746	55.5	863	70.6	58	48.3	1,847	61.7
English I	172	22.7	685	20.7	831	23.5	180	30.0	1,868	23.0
English II	1,139	60.4	3,138	52.0	3,072	62.7	385	56.1	7,734	57.7
U.S. History	542	82.8	1,779	79.0	3,333	86.1	946	92.9	6,600	84.9
Overall	2,120	60.8	6,642	55.4	8,283	68.4	1,585	74.6	18,630	63.4
Meets Grade Level or Above										
Algebra I	87	4.6	293	2.4	183	9.8	16	18.8	579	5.5
Biology	178	16.3	743	16.2	860	28.6	54	9.3	1,835	21.8
English I	172	9.3	685	7.7	831	6.9	180	6.7	1,868	7.4
English II	1,130	43.6	3,132	35.0	3,060	44.8	383	39.9	7,705	40.4
U.S. History	533	48.2	1,768	46.1	3,313	57.7	930	73.0	6,544	56.0
Overall	2,100	38.0	6,621	31.6	8,247	43.7	1,563	54.5	18,531	39.6

Source: End-of-year demographic file, 06/07/21. CTE Student Identifier, 11/24/21. STAAR EOC file, 07/29/21.

Note: STAAR EOC = State of Texas Assessments of Academic Readiness End-of-Course. Number of tested students may differ in Meets Grade Level or Above from Approaches Grade Level or Above due to missing data.

How many credentials were earned by CTE high school students?

Methodology

CTE students had the opportunity to earn industry-based certifications and educational certificates in their career pathways. CTE department staff provided on October 20, 2021 a comprehensive list of all attempted and earned industry-based certifications while the Postsecondary Success department staff provided a cumulative record of educational Level I or Level II certificates attained by grade 11 and 12 students on October 25, 2021. Industry-based certifications were reported to the CTE department by district teachers while Level I and Level II certificates were reported by the Dallas College. The number of certifications earned were compared overall and by school.

Results

Overall, 3,866 Dallas ISD CTE students earned 4,921 credentials in 2020-21 (Table 16), including 4,454 industry-based certifications and 467 educational certificates. This is an increase of 715 credentials from 2019-20 (4,206 credentials). Compared to 2019-20, the number of industry-based certifications increased by 1,122, while the number of educational certificates decreased by 408. The campus with the highest number of CTE students who completed one or more credentials was Skyline ($n=757$), followed by Conrad ($n=229$). Overall, students at Skyline earned the highest number of credentials (943), followed by Seagoville (386) and Townview Business (337).

Certifications identified by TEA for the A to F accountability system accounted for 38 percent ($n=1,684$) of all industry certifications earned; an increase of 118 percent from 2019-20 ($n=770$, 23%). CTE Completers earned the greatest number of educational certificates ($n=366$) and completed industry-based certifications at the highest percentage of all CTE groups (all certifications, 80%; A-F certifications, 70%). However, CTE Concentrators earned the greatest number of industry-based certifications ($n=1,565$, 35%) and A-F certifications ($n=757$, 45%).

Table 16: 2020-21 CTE Credentials Earned by Campus

Campus	Industry-Based Certification						Educational	All
	All Certifications			Certifications in A-F			Certificates	Credentials
	N	n	%	N	n	%	N	N
Skyline	1,364	940	68.9	309	166	53.7	3	943
Conrad	475	380	80.0	216	157	72.7	6	386
Townview Business	263	253	96.2	231	221	95.7	84	337
Kimball	301	246	81.7	148	95	64.2	3	249
Molina	282	198	70.2	93	88	94.6	32	230
Adams	355	220	62.0	243	118	48.6		220
White	513	219	42.7	204	66	32.4		219
Wilson	457	215	47.0	372	138	37.1		215
Seagoville	174	121	69.5	48	38	79.2	85	206
Jefferson	162	144	88.9	35	30	85.7	20	164
Wilmer-Hutchins	226	133	58.8	83	81	97.6	21	154
Sunset	210	141	67.1	124	63	50.8		141
Townview Health	195	139	71.3	94	50	53.2		139
Hillcrest	169	130	76.9	73	45	61.6	2	132
Spruce	110	85	77.3	34	16	47.1	47	132
Adamson	194	106	54.6	95	23	24.2	20	126
Townview Education	158	125	79.1	37	20	54.1		125
Rangel	207	117	56.5	145	61	42.1		117
North Dallas	251	114	45.4	180	50	27.8	2	116
Madison	113	78	69.0	32			28	106
Pinkston	50	40	80.0	26	16	61.5	55	95
South Oak Cliff	94	68	72.3	39	17	43.6	19	87
Townview SEM	77	77	100.0	77	77	100.0		77
Roosevelt	52	29	55.8	10	4	40.0	28	57
IDEA	44	28	63.6	26	10	38.5	9	37
Lincoln	50	33	66.0	16	4	25.0		33
Carter	30	29	96.7	7	7	100.0	3	32
Samuell	30	30	100.0	23	23	100.0		30
CityLab	16	16	100.0					16
Overall								
CTE Participant	839	452	53.9	344	123	35.8		452
CTE Explorer	1,455	914	62.8	509	244	47.9	7	921
CTE Concentrator	2,424	1,565	64.6	1,363	757	55.5	94	1,659
CTE Completer	1,904	1,523	80.0	804	560	69.7	366	1,889
Overall	6,622	4,454	67.3	3,020	1,684	55.8	467	4,921

Source: End-of-year demographic file, 06/07/21. Industry-based certification data, 10/20/21. Educational Certificate data, 10/25/21.

Note: N=Courses attempted, n=courses passed. SEM= Science and Engineering. IDEA = Innovation, Design and Entrepreneurship Academy. Grey area=no credentials earned.

How many associate degrees were awarded to CTE students?

Methodology

ECHS students had the opportunity to earn an associate degree by the time of their high school graduation. Associate degree plan data for graduating grade 12 ECHS students were provided by the Postsecondary Success Department on October 25, 2021, 2021 and merged with the end-of-year demographic file dated June 7, 2021, and CTE Student Identifier file dated November 24, 2021 to identify graduates who were CTE students in 2020-21. Frequency analyses were conducted to report the percentage of these graduates who earned an associate degree by campus, and by associate degree plan.

While attainment of an associate degree is not a stated goal of the CTE program, data are presented to provide a comprehensive analysis of CTE students' achievements.

Results

Overall, 791 CTE graduates earned an associate degree in 2020-21. Of these, all but one student were ECHS students, including 584 PTECH students and 206 traditional ECHS students. Students at Conrad earned the greatest number of associate degrees ($n=90$) across all CTE groups, followed by Garza ($n=75$) and Molina ($n=67$). Overall, students who participated in a program of study (CTE Concentrators and CTE Completers) accounted for 532 associate degrees (67%). This is an increase of 64 percent compared to the 323 coherent sequence CTE students who earned an associate degree in 2019-20.

Table 17: 2020-21 Number of Associate Degrees Awarded to CTE Students

Campus	CTE Participant	CTE Explorer	CTE Concentrator	CTE Completer	Overall	
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>N</i>	%
Conrad	5	32	7	46	90	11.4
Garza	10	57	8		75	9.5
Molina		1	24	42	67	8.5
Gilliam	6	41	8		55	7.0
Sunset		33	17	1	51	6.4
Seagoville HS				45	45	5.7
Lincoln			4	39	43	5.4
Wilmer-Hutchins HS			23	17	40	5.1
Hillcrest		2	28	7	37	4.7
Jefferson			2	34	36	4.6
Adams, B		1	29	5	35	4.4
Samuell	6	23	6		35	4.4
Spruce			5	23	28	3.5
Pinkston		5		21	26	3.3
North Dallas		5	6	7	18	2.3
White		2	15	1	18	2.3
Adamson				17	17	2.1
Carter		8	5	2	15	1.9
Roosevelt		3		11	14	1.8
Lassiter		11	2		13	1.6
South Oak Cliff			6	7	13	1.6
Madison				10	10	1.3
Kimball		7		2	9	1.1
Washington	1				1	0.1
Overall	28	231	195	337	791	100.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21. Graduation file, 08/26/21. Associate Degree files, 10/25//21.

Note: Grey area=no associate degrees earned.

In 2020-21, more Associate of Science degrees were awarded to CTE students ($n=374$, 47%) than Associate of Applied Science ($n=275$, 35%), Associate of Arts ($n=97$, 12%), or Associates of Arts in Teaching ($n=45$, 6%) degrees (Table 18). The Associate of Applied Science was the preferred degree among CTE Completers (74%), while CTE Concentrators and CTE Exploders preferred the Associate of

Science (55% and 89%, respectively). Sixty-four percent of CTE Participants who earned an associate degree also earned an Associate of Science.

Table 18: 2020-21 Associate Degrees Awarded to CTE Coherent Sequence Students by Degree Plan

Degree Plan	CTE Participant	CTE Explorer	CTE Concentrator	CTE Completer	Overall	
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>N</i>	%
Associate of Science	18	205	107	44	374	47.3
Associate of Applied Science			26	249	275	34.8
Associate of Arts	10	25	23	39	97	12.3
Associates of Arts in Teaching		1	39	5	45	5.7
All Degrees	28	231	195	337	791	100.1

Source: ECHS program degree file, 10/25/2.1

Note: Percentages do not sum to 100 due to rounding. Grey area=no associate degrees earned.

What were the college enrollment rates for CTE students?

Methodology

To determine the percentage of 2019-20 Dallas ISD graduates who enrolled in college within one year of graduating high school, the 2019-20 CTE student identification file was merged with the Dallas ISD graduation file dated October 14, 2020 and the 2020-21 National Student Clearinghouse (NSC) college enrollment file dated June 15, 2021. College enrollment is not a stated goal of the CTE program. However, data are presented to provide a comprehensive analysis of CTE students' achievements.

Results

Overall, 8,033 grade 12 students graduated from a Dallas ISD high school in 2019-20 (including the summer semester). Of these, 6,328 students (79%) were CTE students and 1,705 students (21%) were non-CTE students (Table 19). According to the 2020-21 NSC data file, 31 percent of CTE graduates and 39 percent of non-CTE graduates enrolled in college within one year of graduation. Of these students, a higher percentage of CTE students (27%) enrolled in a two-year college than non-CTE students (18%). On the other hand, a lower percentage of CTE students enrolled in a four-year university than non-CTE students (74% vs 82%). College enrollment in two-year colleges differed by two percentage point between CTE elective and coherent sequence students (26% vs 28%). Similarly, a slightly higher percentage of coherent sequence students enrolled in a four-year university than elective students (74% vs 72%). Overall, college enrollment numbers within one year of graduation were lower for all student groups compared to students who graduated in 2018-19 (21 percentage points for CTE graduates vs. 18 percentage points for non-CTE graduates).

Table 19: 2020-21 College Enrollment Rates for 2019-20 Dallas ISD Graduates

Enrollment Status	CTE Coherent Sequence Graduates			CTE Elective Graduates			Total CTE Graduates			Non-CTE Graduates		
	Grad <i>N</i>	Enrolled <i>n</i>	%	Grad <i>N</i>	Enrolled <i>n</i>	%	Grad <i>N</i>	Enrolled <i>n</i>	%	Grad <i>N</i>	Enrolled <i>n</i>	%
Overall	3,673	1,159	31.6	2,655	830	31.3	6,328	1,989	31.4	1,705	657	38.5
Two-Year*		302	26.1		234	28.2		536	26.9		119	18.1
Four-Year*		857	73.9		596	71.8		1,453	73.1		538	81.9

Source: Dallas ISD graduation file, 10/14/20. Demographic file, 05/29/20 (2019-20). NSC file, 06/15/21.

Note: Grad= Graduated. *Enrolled in two year or less or four-year colleges. *Students could not be located in the NSC file.

How did the Dallas ISD perform on CTE related accountability measures?

Methodology

Texas House Bill 22 (HB22) required the TEA to evaluate the academic performance of school districts with an accountability rating of A through F based on three domains: 1) student achievement, 2) school progress, and 3) closing the gaps. College, Career, and Military Readiness Indicators (CCMR) indicators account for 40 percent of the weighted performance of high school campuses, K-12 campuses, and school districts in the student achievement domain. CCMR indicators include, among others, dual-credit course completion, associate degrees earned, and industry-based certifications earned. Ratings were released for the first time in August 2018 for the 2017-18 school year. The 2021 CCMR ratings were released in August 2021 via the Texas Performance Reporting System (TPRS) and on December 8, 2021 via the Texas Academic Performance Report (TAPR) reflecting data from the 2019-20 school year. Although CCMR data was reported by TEA, it will not be used in the calculations of accountability ratings for the 2020-2021 school year.

Results

Over the past three years, the percentage of Dallas ISD graduates who were College, Career or Military Ready decreased by eight percentage points from 57 percent in 2017-18 (2019 report) to 49 percent in 2019-20 (2021 report). On CTE related measures for the same timeframe, the percentage of graduates who earned at least three dual credit hours in ELA or Mathematics or nine hours in any subject increased by 10 percentage points (11% vs 21%) and the percentage of graduates who completed Level I or Level II certificates increased by four percentage point from 2017-18 to 2019-20 (0% vs 4%). The percentage of graduates who earned an industry-based certification increased by two percentage points (1% vs 3%) and the percentage of graduates who completed Individual Education Program and Workforce Readiness and met criterion score on an AP/IB exam increased by one percentage point (2% vs 3% and 22% vs 23%, respectively). The percentage of graduates who met TSI criteria in both ELA/Reading and Mathematics remained stable from 2018-19 to 2020-21 (27% vs 27%).

Table 20: 2018 to 2020 Dallas ISD College, Career, and Military Readiness Indicators

Indicator	2019		2020		2021	
	N/Credit	%	N/Credit	%	N/Credit	%
Graduated College; College, Career or Military Ready	8,085	57	8,293	61	8,197	49
Met TSI criteria in both ELA/Reading and Mathematics	2,193	27	2,292	28	2,176	27
Met criterion score on an AP/IB Exam in any subject	1,762	22	1,037	23	1,881	23
Earned dual credit for at least 3 hours in ELA or Mathematics or 9 hours in any subject	893	11	1,145	14	1,738	21
Earned an industry-based certification from approved list	66	1	137	2	243	3
Earned a level I or level II certificate in any workforce education area	24	0	76	1	333	4
Earned an associate degree while in high school	135	2	245	3	624	8
Graduated with Completed Individual Education Program (IEP) and Workforce Readiness	201	2	194	2	218	3
Enlisted in the Armed Forces*	14	0	28	0	NA	NA
CTE Coherent Sequence Coursework Aligned with Industry-Based Certifications ¹	1,144.5	14	1,247.0	15	NA	NA

Source: 2021 Texas district/school report cards and accountability data accessed on 11/28/21 at tea.texas.gov.

Note: *Due to discrepancies between annual enlistment counts for Texas military enlistees aged 17-19 released by the United States Department of Defense and TSDS PEIMS military enlistment data, military enlistment data is excluded from accountability calculations. ¹2019 was the last year for this indicator to be counted towards CCMR.

Overall, a lower percentage of Dallas ISD graduates were college, career, or military ready (49%) than graduates of comparable districts ($\geq 62\%$) in Texas (Table 21). Dallas ISD graduates had the lowest percentage of all graduates who earned an approved industry-based certification (3%) compared to El Paso ISD (4%), Fort Worth ISD (10%), Austin ISD (11%), Houston ISD (15%), and San Antonio ISD (24%). A higher percentage of Dallas ISD graduates earned a Level I or Level II certificate (4%) than Austin ISD (1%), San Antonio ISD (1%), and Houston ISD (0%). No numbers were reported for El Paso ISD and Fort Worth ISD. Similarly, no military enlistment information was provided due to discrepancies between annual enlistment counts for Texas military enlistees aged 17-19 released by the United States Department of Defense and TSDS PEIMS military enlistment data. Therefore, military enlistment data is excluded from accountability calculations. The percentage of Dallas ISD graduates who graduated with completed Individual Education Program (IEP) and Workforce Readiness was the same as for Austin ISD and San Antonio ISD (3%), but higher than graduates in Fort Worth ISD (2%), El Paso ISD (1%), and Houston ISD (1%). A higher percentage of Dallas ISD graduates earned associate degree while in high school (8%) than graduates in San Antonio ISD (5%), El Paso ISD (4%), Fort Worth ISD (4%), Houston ISD (3%), and Austin ISD (2%).

Table 21: 2021 Dallas ISD, Austin ISD, El Paso ISD, Fort Worth ISD, Houston ISD, San Antonio ISD CTE College, Career, and Military Readiness Indicators

Indicator	Dallas ISD		Austin ISD		El Paso ISD		Fort Worth ISD		Houston ISD		San Antonio ISD	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Graduated College; Career or Military Ready	8,197	49	4,524	85	4,124	73	4,749	62	11,415	62	2,609	68
Met TSI criteria in both ELA/Reading and Mathematics	2,176	27	3,411	75	2,342	57	1,982	42	4,397	39	979	38
Met TSI criteria in ELA/Reading	3,657	45	3,803	84	3,160	77	3,189	67	6,441	56	1,447	56
Met TSI criteria in Mathematics	2,358	29	3,617	80	2,621	64	2,372	50	5,059	44	1,269	49
Met criterion score on an AP/IB Exam in any subject	1,881	23	1,527	34	938	23	963	20	3,193	28	470	18
Earned dual credit for at least 3 hours in ELA or Mathematics or 9 hours in any subject	1,738	21	1,325	29	1,259	31	647	14	1,935	17	776	30
Earned an industry-based certification from approved list	243	3	516	11	166	4	492	10	1,725	15	621	24
Earned a level I or level II certificate in any workforce education area	333	4	29	1					44	0	26	1
Earned an associate degree while in high school	624	8	71	2	150	4	209	4	283	3	131	5
Graduated with Completed Individual Education Program (IEP) and Workforce Readiness	218	3	132	3	40	1	80	2	140	1	67	3
Identified as receiving special education services and earned an advanced degree plan	324	4	244	5	188	5	166	4	401	4	141	5
Enlisted in the Armed Forces*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: 2020 Texas district/school report cards and accountability data accessed on 11/28/21 at tea.texas.gov.

Note: *Due to discrepancies between annual enlistment counts for Texas military enlistees aged 17-19 released by the United States Department of Defense and TSDS PEIMS military enlistment data, military enlistment data is excluded from accountability calculations.

What were teacher perceptions of the CTE program?

Methodology

The CTE department conducts an annual survey to collect programmatic feedback from teachers to assess program strengths and identify areas of improvement. Insights gained from the survey are meant to help with future program development and program evaluation. Survey items ($n=64$) consist of a mix of closed- ($n=49$) and open-ended ($n=15$) questions regarding teacher qualifications, program alignment, facilities, CTE program strength, and CTE program needs. The 2020-21 survey was administered by CTE staff from April 13 through May 13, 2021, using JotForm, an online survey-development tool. Survey results were provided to the evaluator on June 14, 2021. The evaluator used frequency analyses to calculate responses to closed-ended survey questions, and content analyses for responses to open-ended questions, grouping feedback into general themes.

Results

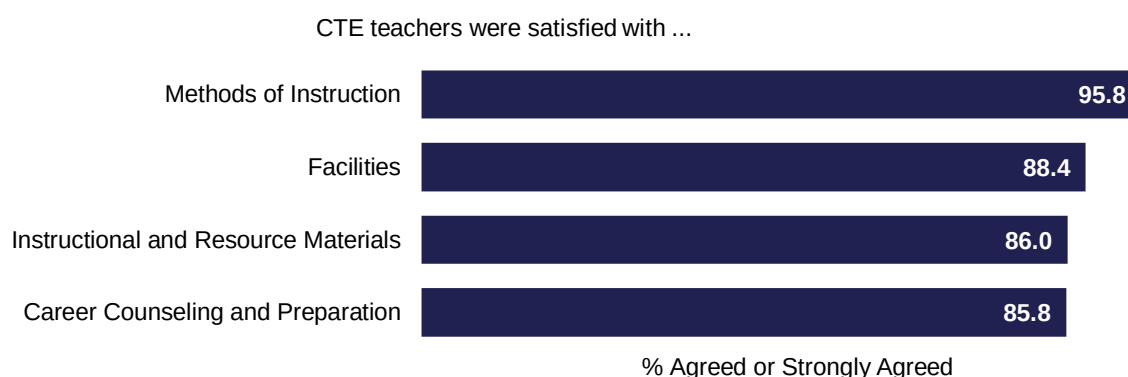
Two-hundred and ninety-nine CTE teachers (40%¹⁵) responded to the 2020-21 information request from the CTE department. All responding teachers indicated that they taught only one career cluster, an increase by 20 percentage points from 2019-20 (80%). Teachers further reported that they taught on average 112 students in 2020-21, a decrease of 6 percentage points from 2019-20. Of the 249 teachers that taught subject matters for which industry-based certifications were offered, 187 teachers (75%) indicated that they offered students the opportunity to earn industry-based certificates. Regarding the program's impact on student career interests and post-secondary plans, teachers could select more than one response option. The following four areas stood out: the CTE program allows students to discover career opportunities they otherwise may not have considered (98%), the CTE program provides students with basic training to obtain a job (81%), the CTE program motivates students to pursue post-secondary education (80%), and the CTE program motivates students to complete high school who otherwise are at risk of dropping out (77%). Overall, 99 percent of CTE teachers indicated that learning activities were aligned with current practices in business, industry, and/or technology.

CTE teachers also provided feedback on the instructional and resource materials, methods of instructions, career counseling and preparation, and workplace cleanliness. Each section of the survey contained several questions about each category. Feedback by category is presented as an overall average (combined) in Figure 4. Individual questions by category are presented in Appendix F. Ninety-six percent of respondents agreed or strongly agreed that instruction methods were appropriate to provide quality CTE education to Dallas ISD students. Eighty-eight percent of respondents agreed or strongly agreed that facilities were well maintained and provided up-to-date technologies to ensure effective student learning. Eighty-six percent of respondents indicated that the CTE program provided students with the appropriate instructional and resource materials needed to succeed. Eighty-six percent of respondents agreed or

¹⁵ Course file listed 504 CTE teachers. However, the course file did not identify teachers for 290 courses.

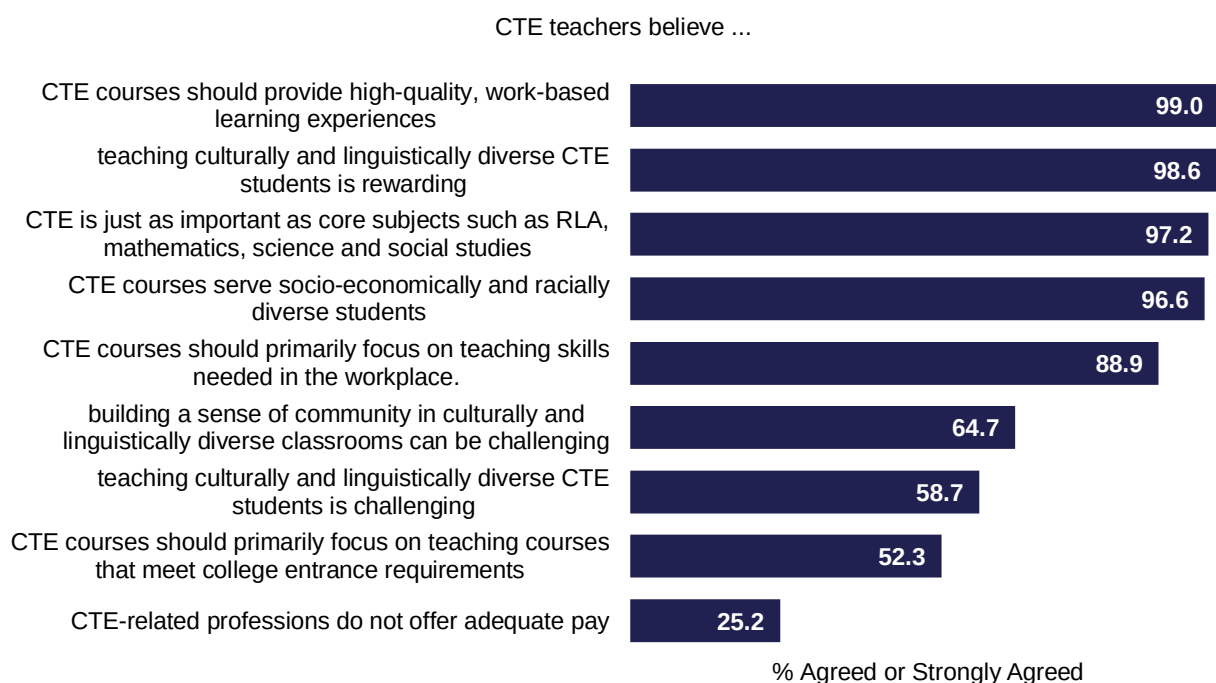
strongly agreed that the CTE program provided students training in in-demand careers and provided opportunities to establish strong relationships with businesses and postsecondary schools. Overall, teacher's satisfaction increased from 2019-20 to 2020-21 by five percentage points (facilities and career counseling and preparation) to 10 percentage points (methods of instructions).

Figure 4: 2020-21 CTE Teacher Perceptions of the CTE Program



Source: 2020-21 CTE Program Survey, 6/14/21.

CTE teachers also articulated their perceptions regarding the CTE program focus and implementation (Figure 5). Respondents highlighted that CTE courses should provide high-quality, work-based, learning experiences (99%) and focus on teaching skills that are needed in the workforce (89%). Ninety-seven percent of teachers agreed or strongly agreed that the CTE program successfully serves a diverse student population. Although 59 percent of respondents indicated that serving such a diverse student population can at times be challenging, almost all respondents (99%) found their work to be rewarding. Ninety-seven percent of respondents agreed or strongly agreed that CTE courses should receive the same level of importance given to core courses. Overall, 85 percent of respondents agreed that CTE related professions offer competitive pay. Results were similar to those of 2019-20 CTE survey.

Figure 5: 2020-21 CTE Teacher Perceptions of CTE Program Focus and Implementation

Source: 2020-21 CTE Program Survey, 06/14/21.

CTE teachers also provided feedback on the impact of COVID-19 and the resulting transition to provide in-person and virtual learning. Teachers could select more than one response option to articulate challenges they faced. Two-hundred and three of the 299 respondents (68%) indicated that the delivery of instruction was impacted by technical issues. Thirty-nine percent of teachers noted that they were not provided adequate resources, followed by inadequate guidance from district and campus leadership ($n=114$, 38%). Nine percent of teachers ($n=27$) indicated that students seemed to be less motivated. Overall, 99 percent of respondents ($n=295$) reported that they tried to contact students or their parents on a weekly or more frequent basis (41% weekly basis, 33% monthly basis, 16% daily basis, and 9% twice a week). Respondents noted that Zoom (93%), Google classroom (84%), email (70%), and YouTube (53%) were the primary means of teaching online.

KEY FINDINGS AND RECOMMENDATIONS

Key Findings

The primary purpose of the Career and Technical Education (CTE) programs is to prepare students for college and career success by providing them with the skills necessary to be competitive in a global economy. To meet this goal, the Dallas Independent School District (ISD) CTE department offers courses across 51 comprehensive CTE pathways to students in grades six through 12. Through participation in CTE, students can earn diploma endorsements, industry certifications, educational certificates, and college credit hours. In addition, students can participate in paid internships. Program activities are partially funded through state CTE funds and a grant established by the Carl D. Perkins Career and Technical Education Act of 2006. Overall, Dallas ISD budgeted \$40,379,434 for CTE activities, which included \$4,046,618 for the Career Institutes. Key findings included:

- During the 2019-20 school year, 42,029 students participated in CTE, including 12,862 middle school students and 29,167 high school students. Middle school enrollment in CTE courses increased by 11 percentage points from 2019-20 to 2020-21 (30% vs 41%), while high school enrollment increased by two percentage points compared to 2019-20 (71% vs 73%).
- The ethnic composition of district CTE students was similar to middle and high school students not enrolled in the CTE program. A smaller percentage of CTE students received special education services compared to non-CTE students (8% vs 13%), and fewer CTE students were English learners compared to non-CTE students (42% vs 44%). In 2020-21, CTE students were at the same risk of dropping out than non-CTE students (66%).
- Overall, CTE enrollment rates increased in middle school from 14 percent of grade six students to 56 percent of grade eight students, and in high school from 64 percent of grade nine students to 77 percent of grade 12 students.
- In 2020-21, under TEA's new CTE student classification system, 18,963 of the 42,029 CTE students were identified as CTE Participants (45%), followed by CTE Explorers ($n=9,845$, 23%), Concentrators ($n=9,417$, 22%), and CTE Completers ($n=3,804$, 9%).
- In 2020-21, CTE students were enrolled on average in 1.2 career clusters. Career clusters with the highest enrollment were Business Management & Administration (29%), followed by Science, Technology, Engineering & Mathematics (20%), and Arts A V Technology Communications (14%).
- A total of 13,709 high school students enrolled in CTE courses through one or more specialized programs including the Career Institutes ($n=2,043$), NAF Academies ($n=7,754$), and ECHSs ($n=4,977$).
- In 2020-21, 48 NAF Academies operated at 20 Dallas ISD campuses. Overall, five percent of NAF participants ($n=379$) enrolled in more than one academy (max academies enrolled=3). NAF academies with the highest enrollment numbers for 2020-21 were Academy of Finance ($n=2,227$), followed by Academy of Information Technologies ($n=2,091$), and Academy of Engineering ($n=1,555$).
- In 2020-21, 2,043 CTE students enrolled in 2,416 courses offered by three Career Institutes.

- In 2020-21, 42,029 CTE students enrolled in 67,475 CTE courses with an 81 percent passing rate (54,420 courses). Likewise, 4,977 Dallas ISD students participated in 10,451 CTE dual credit courses of which they passed 8,247 courses (79%).
- CTE Completers had the highest overall passing rate for all CTE courses (94%) and CTE dual credit course (89%) followed by CTE Concentrators (89% and 84%), and CTE Participants (77% and 68%). CTE Explorers had the lowest overall passing rate for all CTE courses (70%) and CTE dual credit courses (65%).
- Overall, 15,013 out of the 29,167 CTE high school students took one or more *STAAR EOC* exams in 2020-21 (51%). The subject test with the highest participation count was English II ($n=7,734$), followed by U.S. History ($n=6,600$). U.S. History was also the subject test with the largest number of students who met the Approaches+ benchmark (85%).
- Overall, 3,866 Dallas ISD CTE students earned 4,921 credentials in 2020-21, including 4,454 industry-based certifications and 467 educational certificates. This is an increase of 715 credentials from 2019-20 (4,206 credentials). Certifications identified by TEA for the A to F accountability system accounted for 38 percent ($n=1,684$) of all industry certifications earned.
- In 2020-21, 791 CTE graduates earned an associate degree. Students who participated in a program of study (CTE Concentrators and CTE Completers) accounted for 532 associate degrees (67%). This is an increase of 64 percent compared to the 323 coherent sequence CTE students who earned an associate degree in 2019-20.
- According to the 2020-21 NSC data file, 31 percent of 2019-20 CTE graduates and 39 percent of non-CTE graduates enrolled in college within one year of graduation. Of these students, more CTE students enrolled in a two-year college than non-CTE students (27% vs 18%). Similarly, a lower percentage of CTE students enrolled in a four-year university than non-CTE students (73% vs 82%).
- The percentage of graduates who were College, Career or Military Ready decreased by 12 percentage points from 61 percent in 2018-19 (2020 report) to 49 percent in 2019-20 (2021 report).
- Overall, a lower percentage of Dallas ISD graduates were college, career, or military ready (49%) than graduates of comparable districts ($\geq 62\%$) in Texas.
- Two-hundred and ninety-nine CTE teachers responded to the CTE departmental survey. Among the key-findings were that 98 percent of respondents agreed that the CTE program allows students to discover career opportunities they otherwise may not have considered. Eighty-one percent of respondents agreed that the CTE program provides students with basic training to obtain a job. Furthermore, 80 percent of respondents agreed that the CTE program motivates students to complete high school who otherwise are at risk of dropping out. Overall, 99 percent of CTE teachers indicated that CTE learning activities were aligned with current practices in business, industry, and/or technology. However, 68 percent of respondents also noted that the delivery of instruction in a hybrid teaching environment was impacted by technical issues.

Recommendations

Based on the key findings, the following recommendations are offered for stakeholders.

Continue to work with the IT Department on accurately tracking CTE participation. Review of PowerSchool enrollment data indicated that CTE students were not accurately identified as such. This is especially true for cases in which students participate in more than one program, such as being an ECHS student taking CTE courses, resulting in the underreporting of CTE students.

Continue to support specialized CTE initiatives including Career Institutes and NAF Academies. In 2020-21, 2,043 CTE students enrolled in Career Institute classes at one of three campuses. An additional 7,754 students enrolled in one or more NAF Academies. Review of the program documents indicated that these programs help provide specialized work-based, learning experiences that may otherwise be inaccessible for a large part of Dallas ISD students; increasing the likelihood that students can earn a living wage after graduating high school.

Continue to promote CTE students' completion of educational certificates and industry-based certifications. CTE students earned 4,921 credentials in 2020-21, including 467 educational certificates and 4,454 industry-based certifications. Thirty-eight percent ($n=1,684$) of all industry certifications earned were A-F certifications providing points towards TEA's A to F accountability system. Although the numbers of industry-based certifications increased for the first time in two years by 33 percent from 2019-20 to 2020-21 (A-F certifications increased by 118%), the number of educational certificates earned decreased over the same timeframe by 46 percent. Given the importance of credentials in finding employment, the CTE department should continue to find ways to promote the participation and completion of industry-based certifications or educational certificates.

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APPENDICES

Appendix A

Appendix A: 2020-21 Career Pathways and Academies by Campus

	Business and Industry							Public Services			STEM		
Career and Technical Education (CTE) Pathways by Career Cluster and Endorsement	Agriculture, Food & Natural Resources	Architecture & Construction	Arts, A/V Technology & Communications	Business, Marketing & Finance	Hospitality & Tourism	Information Technology	Manufacturing	Transportation, Distribution & Logistics	Education	Health Science	Human Services	Law & Public Service	Science, Technology, Engineering & Mathematics
Bryan Adams		*	*	*	*	*						*	*
Adamson		*		*			*	*			*		*
Carter		*		*		*	*	*				*	
City Lab	*	*										*	
Conrad		*		*	*	*	*	*		*			*
Hillcrest		*		*			*	*					*
IDEA				*		*							
Jefferson		*		*	*		*	*				*	*
Kimball		*		*	*		*	*				*	*
Lincoln		*	*	*	*								*
Madison		*		*		*							*
Molina		*	*				*	*				*	*
North Dallas		*		*	*	*	*	*					*
Obama													
Pinkston		*				*	*	*				*	*
Rangel													
Roosevelt		*			*		*	*		*			*
Samuell		*		*		*							*
Seagoville	*		*										
Skyline	*	*	*	*	*	*		*	*		*	*	*
Smith New Tech			*										
South Oak Cliff		*		*		*	*	*					*
Spruce		*		*		*		*					*
Sunset		*		*			*	*				*	*
Townview Business				*		*							
Townview Education									*		*		
Townview Health										*			
Townview Law												*	
Townview SEM													
Townview TAG													*
Washington PVA													
White				*			*	*		*	*		*
Wilmer-Hutchins		*	*	*	*	*		*					
Wilson		*		*									*
Total CTE Pathways	3	21	7	20	9	13	13	16	2	4	4	10	20

Source: CTE Department program document, Fall 2021.

Note: PVA= Performing and Visual Arts, IDEA = Innovation, Design and Entrepreneurship Academy. SEM= Science and Engineering. TAG = Talented and Gifted. * Met by traditional CT, Career Institute, or NAF courses.

Appendix B

Appendix B: 2020-21 CTE Indicator Auto-Coding

Texas CTE Indicator Auto-Coding Codes and Definitions 	
 Not CTE	Code 4 (Not CTE): A student who never enrolled or who did not complete any high-school CTE course as defined by 19 TAC Chapter 126 (C), 127 (B) or 130.
 CTE Participants	Code 5 (CTE Participant): A student completing one or more courses for less than two credits defined by 19 TAC Chapter 126 (C), 127 (B) or 130 (the student does not have to pass or receive credit).
 CTE Explorers	Code E (CTE Explorer): A student completing two or more high school CTE courses for a total of two or more credits defined by 19 TAC Chapter 126 (C), 127 (B) or 130 and not a participant, concentrator or completer (the student does not have to pass or receive credit).
 CTE Explorers*	*Code E (CTE Explorer): A student completing enough program of study courses in a regional program of study to be coded a 6 or 7, but completes the school year in a district and geographic region where the regional program is not approved. The code 6 or 7 is changed to a code E.
 CTE Concentrators	Code 6 (CTE Concentrator): A student completing and passing two or more 19 TAC Chapter 126 (C), 127 (B) or 130 CTE courses for a total of at least two credits within the same program of study and not a completer.
 CTE Completers	Code 7 (CTE Completer): A student completing and passing three or more 19 TAC Chapter 126 (C), 127 (B) or 130 CTE courses for a total of four or more credits within a program of study, including one level three or level four course from within the same program of study.
*Regional programs of study are approved in ESC geographic regions where there is specialized regional labor market demand for specific occupations. Students concentrating (code 6) and/or completing (code 7) a program of study outside of approved geographic ESC regions are assigned a code E (Explorer).	

Source: CTE Program Staff, Fall 2021.

Appendix C

Appendix C: 2020-21 Career Institute Pathways

		9th Grade	10th Grade	11th Grade	12th Grade
 Aviation	COURSES	Introduction to Aerospace and Aviation	Introduction to Unmanned Aerial Vehicles (UAV) Flight and Aviation Ground School	Advanced Aircraft Systems	Practicum in Transportation Systems
	CERTIFICATIONS	OSHA 10	FAA Remote Unmanned Aerial Vehicle Pilot Certification	Southwest Airlines Professional Communications	Student Pilot Certificate
 Construction	COURSES	Principles of Construction	Construction Technology I	Construction Technology II	Practicum in Construction Technology
	CERTIFICATIONS	OSHA 10	Autodesk Certified Professional (ACP) in Autodesk Revit Building Systems	NCCER Core Curriculum	NCCER Carpentry, Level 1
 Interior Design	COURSES	Principles of Architecture	Interior Design I	Interior Design II	Practicum in Architecture
	CERTIFICATIONS	OSHA 10	AAFCS Interior Design Fundamentals	Autodesk Certified User in AutoCAD	Autodesk Certified Professional (ACP) in Autodesk Revit Building Systems
 Plumbing	COURSES	Principles of Construction	Plumbing Technology I	Plumbing Technology II	Practicum in Construction Technology
	CERTIFICATIONS	OSHA 10	Autodesk Certified Professional (ACP) in Autodesk Revit Building Systems	NCCER Core Curriculum	NCCER Plumbing, Level 1
 Electrical	COURSES	Principles of Construction	Electrical Technology I	Electrical Technology II	Practicum in Construction Technology
	CERTIFICATIONS	OSHA 10	Autodesk Certified Professional (ACP) in Autodesk Revit Building Systems	NCCER Core Curriculum	NCCER Electrical, Level 1
 HVAC	COURSES	Principles of Construction	HVAC and Refrigeration Technology I	HVAC and Refrigeration Technology II	Practicum in Construction Technology
	CERTIFICATIONS	OSHA 10	Autodesk Certified Professional (ACP) in Autodesk Revit Building Systems	NCCER Core Curriculum	ACCA (Air Conditioning Contractors of America) Refrigerant Handling (EPA 608)
 Mechatronics	COURSES	Principles of Manufacturing	Manufacturing Engineering Technology I	Manufacturing Engineering Technology II	Practicum in Manufacturing
	CERTIFICATIONS	OSHA 10 Auto CAD	MSSC (Manufacturing Skills Standards Council) Certified Production Technician (CPT)	NIMS (National Institute for Metalworking Skills) Industrial Technology Maintenance and (TIM)- Maintenance Operations	NIMS (National Institute for Metalworking Skills) Industrial Technology Maintenance and (TIM) Process Control Systems
 Cybersecurity	COURSES	Foundations of Cybersecurity	AP Computer Science Principles	Computer Science I or AP Computer Science A	Cybersecurity Capstone
	CERTIFICATIONS	CompTIA IT Fundamentals	Microsoft Technology Associate (MTA) Security Fundamentals	CompTIA Security+	Oracle Certified Associate (OCA), Java SE 8 Programmer
Other courses offered on Campus: Spanish I, Spanish II, Principles of Information Technology, Computer Science I (LOTE Credit) AP Computer Science Principles, General Employability Skills.					

Source: Career Institutes program flyer provided, Fall 2019.

Appendix D

Appendix D, Table 1: 2020-21 CTE Student Enrollment by Career Cluster

Career Cluster	Middle School CTE (n=12,862)			High School CTE (n=29,167)				Overall CTE (N=42,029)	
	CTE Participant	CTE Explorer	CTE Concentrator	CTE Participant	CTE Explorer	CTE Concentrator	CTE Completer	Total Enrollment	Enrollment by Cluster
	n	n	n	n	n	n	n	N	%
Business Marketing Finance	1,178	192		2,081	3,578	3,912	1,051	11,992	28.5
General Elective CTE Courses*	7,687	24		16	345	224	404	8,700	20.7
Science Technology Engineering Mathematics	2,720	295	3	893	2,025	2,108	511	8,555	20.3
Arts A V Technology Communications	2,219	188		763	1,013	1,082	461	5,726	13.6
Information Technology	400	73		835	1,710	1,310	441	4,769	11.3
Human Services	1,037	64		646	948	996	490	4,181	9.9
Health Science				317	739	981	664	2,701	6.4
Law Public Service	1			325	681	1,078	571	2,656	6.3
Hospitality Tourism				415	602	716	382	2,115	5.0
Architecture Construction	2			402	896	353	312	1,965	4.7
Transportation Distribution Logistics				96	339	237	223	895	2.1
Education Training	73			53	177	305	138	746	1.8
Agriculture Food Natural Resources				199	183	181	78	641	1.5
Manufacturing				89	187	123	23	422	1.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: Column percent does not sum to 100 percent as student could enroll in more than one career cluster. A grey box indicates that no middle schools did offer a coherent sequence of CTE courses. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A V = Audio Video.

Appendix D, Table 2: 2020-21 CTE Course Enrollment by Career Cluster

Career Cluster	Middle School CTE (n=12,862)			High School CTE (n=29,167)				Overall CTE (N=42,029)	
	CTE Participant	CTE Explorer	CTE Concentrator	CTE Participant	CTE Explorer	CTE Concentrator	CTE Completer	Total Enrollment	Enrollment by Cluster
	n	n	n	n	n	n	n	N	%
Business Marketing Finance	1,178	194		2,312	4,588	5,827	2,062	16,161	24.0
Science Technology Engineering Mathematics	3,237	475	3	979	2,494	2,686	790	10,664	15.8
General Elective CTE Courses*	8,504	27		16	352	238	422	9,559	14.2
Arts A V Technology Communications	2,264	195		779	1,066	1,207	787	6,298	9.3
Information Technology	400	73		852	1,849	1,453	641	5,268	7.8
Human Services	1,037	64		680	1,088	1,229	628	4,726	7.0
Health Science				320	785	1,278	1,450	3,833	5.7
Law Public Service	1			327	764	1,361	898	3,351	5.0
Architecture Construction	2			404	967	440	536	2,349	3.5
Hospitality Tourism				417	633	807	442	2,299	3.4
Transportation Distribution Logistics				97	356	258	226	937	1.4
Education Training	73			53	191	350	179	846	1.3
Agriculture Food Natural Resources				201	201	216	94	712	1.1
Manufacturing				89	219	135	29	472	0.7
Overall	16,696	1,028	3	7,526	15,553	17,485	9,184	67,475	100.0

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: Column percent does not sum to 100 percent as student could enroll in more than one career cluster. A grey box indicates that no middle schools did offer a coherent sequence of CTE courses. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A V = Audio Video.

Appendix E

Appendix E, Table 1: 2020-21 CTE Course Enrollment and Completion Rates for Middle School Students

Career Cluster	CTE Participant		CTE Explorer		CTE Concentrator		CTE Completer		Total CTE Enrollment	
	N	%	N	%	N	%	N	%	N	%
Architecture Construction	2	100.0							2	100.0
Law Public Service	1	100.0							1	100.0
Education Training	73	87.7							73	87.7
Business Marketing Finance	1,178	81.1	194	86.6					1,372	81.9
Arts A V Technology Communications	2,264	79.5	195	67.2					2,459	78.5
General Elective CTE Courses*	8,504	77.5	27	85.2					8,531	77.5
Information Technology	400	76.3	73	83.6					473	77.4
Science Technology Engineering Mathematics	3,237	73.9	475	76.4	3	100.0			3,715	74.2
Human Services	1,037	58.5	64	45.3					1,101	57.8
Agriculture Food Natural Resources										
Health Science										
Hospitality Tourism										
Manufacturing										
Transportation Distribution Logistics										
Overall	16,696	76.2	1,028	75.4	3	100.0			17,727	76.1

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: N=Enrollment Number %=Completion Percentage. Student could enroll in more than one career cluster. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A grey box indicates that no students were enrolled. A V = Audio Video.

Appendix E, Table 2: 2020-21 CTE Course Enrollment and Completion Rates for High School Students

Career Cluster	CTE Participant		CTE Explorer		CTE Concentrator		CTE Completer		Total CTE Enrollment	
	N	%	N	%	N	%	N	%	N	%
Health Science	320	93.1	785	88.2	1,278	93.0	1,450	97.0	3,833	93.5
Hospitality Tourism	417	88.5	633	74.6	807	91.9	442	98.0	2,299	87.7
Law Public Service	327	83.5	764	74.5	1,361	88.0	898	97.4	3,350	87.0
Architecture Construction	404	82.2	967	78.9	440	91.1	536	97.6	2,347	86.0
General Elective CTE Courses*	16	81.3	352	75.9	238	76.9	422	96.4	1,028	84.6
Transportation Distribution Logistics	97	81.4	356	73.0	258	89.5	226	98.2	937	84.5
Manufacturing	89	85.4	219	74.0	135	94.1	29	96.6	472	83.3
Science Technology Engineering Mathematics	979	79.8	2,494	73.1	2,686	90.7	790	94.2	6,949	83.2
Arts A V Technology Communications	779	80.1	1,066	65.5	1,207	87.4	787	91.6	3,839	80.7
Human Services	680	77.8	1,088	65.8	1,229	86.3	628	93.9	3,625	79.9
Business Marketing Finance	2,312	76.3	4,588	64.8	5,827	89.4	2,062	89.3	14,789	79.7
Education Training	53	60.4	191	50.8	350	85.7	179	92.2	773	76.8
Information Technology	852	79.7	1,849	65.3	1,453	85.3	641	86.7	4,795	76.8
Agriculture Food Natural Resources	201	56.7	201	49.8	216	86.6	94	98.9	712	69.4
Overall	7,526	79.2	15,553	69.4	17,485	89.0	9,184	93.7	49,748	82.3

Source: End-of-year demographic file, 06/07/21. CTE course file, 11/16/21. Dallas ISD course file, 08/16/21. CTE Student Identifier, 11/24/21

Note: N=Enrollment Number %=Completion Percentage. Student could enroll in more than one career cluster. * General Elective CTE Courses is not a CTE cluster but serves as a holder for CTE courses that can serve more than one cluster. A V = Audio Video.

Appendix F

Appendix F: 2020-21 Tracks for the Associate Degree in Applied Science

- | | |
|---|--------------------------------------|
| • Accounting | • Gaming |
| • Advanced Manufacturing/Mechatronics | • Health Information Technology |
| • Allied Health | • Hospitality Management |
| • Business | • Internet Development Technology |
| • Business Administration | • Law Enforcement |
| • Business and Finance | • Logistics |
| • Computer-aided architectural design (CAAD) | • Manufacturing |
| • Computer Graphics | • Management |
| • Construction Technology | • Network Administration and Support |
| • Criminal Justice | • Personal Computer Support |
| • Digital Media Technology | • Pre-Electrical Engineering |
| • Early Childhood Education | • Pre-Mechanical Engineering |
| • Electrical Engineering Technology | • Public Health |
| • Electronic Technology | • Public Service |
| • Energy Management | • Software Programming |
| • Heating, ventilation, and air conditioning (HVAC) | • Visual Communications |
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Source: Career Institutes slides presented at Board briefing on 03/07/19.

Appendix G

Appendix G: 2020-21 CTE Teacher Perceptions of the CTE Program

Survey Question	Agree <i>n</i>	Disagree <i>n</i>	Strongly Agree <i>n</i>	Strongly Disagree <i>n</i>	I Don't Know/ Not Applicable <i>n</i>	Grand Total <i>N</i>	Agree or Strongly Agree %
Methods of Instruction							
Instructional strategies provide the students with skills that will enable them to keep pace with the changing workplace and to have upward mobility in employment opportunities	175	11	110	1	2	299	96.0
An Individual Education Plan (IEP) is available in a timely manner for all Special Education students	157	19	104	6	13	299	91.3
Instructor analyzes, evaluates and makes changes in the curriculum as needed, to address the needs of students	142	0	155	0	2	299	100.0
Workplace Cleanliness							
The facility is arranged, organized, and maintained to ensure a safe and appropriate environment for effective student learning	160	23	103	8	5	299	89.5
The instructional areas are maintained in a clean and orderly fashion	164	12	116	2	5	299	95.2
Tools and/or equipment provided in the instructional areas are comparable to those used in business and/or industry	141	42	73	23	20	299	76.7
All safety protective equipment, including fire extinguishers, are accessible and the proper usage of such equipment is included in the instructional program	98	13	80	2	106	299	92.2
Safety training is provided to students and tests are administered annually and kept on file	82	14	67	3	133	299	89.8
Career Counseling and Preparation							
I am aware of the House Bill 5 endorsements selected by the students enrolled in my classes	154	33	81	10	21	299	84.5
Your Career and Technical Education program provides training for career opportunities available in the community and/or in the region	158	10	101	4	26	299	94.9
Strong partnerships exist with business and postsecondary schools for your Career and Technical Education program	138	52	75	8	26	299	78.0

table continues

Appendix G, Table 1 (continued)

Survey Question	Agree <i>n</i>	Disagree <i>n</i>	Strongly Agree <i>n</i>	Strongly Disagree <i>n</i>	I Don't Know/ Not Applicable <i>n</i>	Grand Total <i>N</i>	Agree or Strongly Agree %
Instructional and Resource Materials							
As a Career and Technical Education teacher, I am involved in the selection and acquisition of current instructional materials and supplies necessary to conduct a quality program of instruction	148	20	106	14	11	299	88.2
Students have adequate use and benefit of an up-to-date reference/technical library, equipment, and career resources	148	51	78	14	8	299	77.7
A variety of instructional materials are available and used to accommodate student differences, such as varying reading levels and learning styles	164	42	73	10	10	299	82.0
Instructional materials, tools, equipment, and supplies are modified or accommodations made, when appropriate, to meet the needs of all students including special populations	175	11	110	1	2	299	96.0

Source: 2020-21 CTE Program Survey, 06/14/21

Note: Presented survey questions reflect a sample of questions asked to CTE teachers.