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Results indicated that implementation aligned industry and postsecondary standards through courses and programs of study (POS) that prepared scholars to earn postsecondary credentials. At least one industry certification (industry-based or industry-driven) was earned by 1,530 CTE scholars. At least one dual college credit was earned by 2,837 CTE scholars. At least one articulated college credit (i.e., credit earned through a high-school-level course that fulfills specific requirements of an identified college-level course and provides a pathway for high school students to earn credit toward a technical certificate or technical degree at a

Figure 1

Level I Certifications Earned Through ACC in 2020 and 2021

More AISD graduates earned biotechnology level I certificates in 2021 than in 2020.

Source. ACC records for AISD Graduates, 2020 and 2021

The Commercial Electrical Construction certification was the most frequently earned certificate by scholars in 2020 and 2021 (Table 1)

However, the percentage of certification exams repor

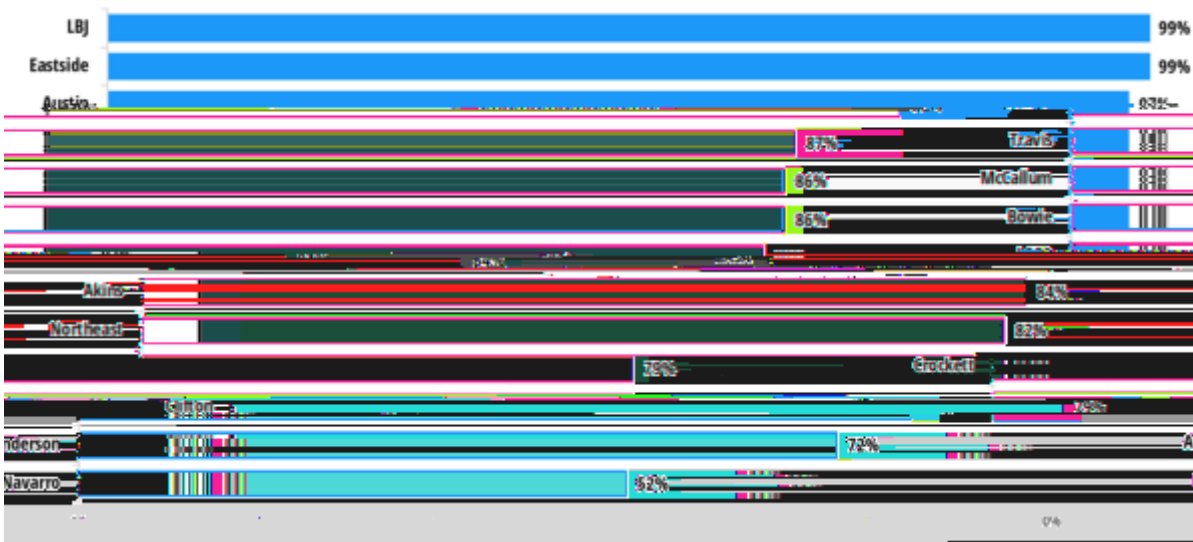
As an industry, careers in the transportation, distribution, and logistics cluster offer a multitude and variety of certifications.

Figure 3
 Number of Industry Certifications Earned, by Campus



Source: AISD and CTE records, 2020–2021

Figure 4
 Passing Rates of Industry Certifications Earned, by Campus



Source: AISD and CTE records, 2020–2021

High school scholars enrolled in dual-credit courses to earn academic credits recognized by postsecondary institutions. CTE offers dual credit and articulated credit courses for scholars to earn college credit during high school. According to the TEA (2022),

The Texas Higher Education Coordinating Board (THECB) defines dual credit as a system in which an eligible high school student enrolls in college course(s) and receives credit for the

course(s) from both the college and high school. Dual credit courses may be taught on the high school campus by an approved instructor or on the college campus. Dual credit courses include both academic and technical courses. (<https://tea.texas.gov/academics/college-career-and-military-prep/dual-credit>).

At least one dual credit was earned during high school by 3,771 unique CTE scholars; at least one dual credit was earned in 2021 by 2,837 unique CTE scholars.

Figure 5

Top Articulated Courses, by Number of Scholars

Articulated credit was earned by scholars in multiple career fields.

Source. AISD and CTE records, 2020-2021

Table 5

Nepris Video and Virtual Session Usage, by School Level

		Number at high schools	Number at middle school	Total
Video	Videos	370	130	500
	Instructors	90	20	120
	Campuses	16	14	30
	Live sessions	35	4	39
Virtual				

Figure 7

Nepris Video Usage, by Middle School Campus

Source. Nepris records, August 2020 through June 2021

The majority of CTE instructors (52%) reported that they did not use Nepris videos or virtual sessions to support their CTE classes (Figure 8). Among the instructors, usage was reported at one to four times per semester (42%), five to nine times per semester (2%), and more than 10 times per semester (4%).

Resources used for virtual instruction included course blueprints and resources in the district's learning management system, Blend. A total of 75 CTE courses were written in Blend and made available with other course blueprints (Table 6).

Table 6

CTE Courses in Blend

Course Name	Cluster
Accounting I	Business, Marketing, and Finance
Accounting II	Business, Marketing, and Finance
Advanced Animal Science	Agriculture, Food and Natural Resources
Advanced Plant and Soil Science	Agriculture, Food and Natural Resources
Anatomy and Physiology	Science, Technology, Engineering, and Mathematics
Animation I	Arts, A/V Technology, and Communication
Animation II	Arts, A/V Technology, and Communication
A/V Production I	Arts, A/V Technology, and Communication
A/V Production II	Arts, A/V Technology, and Communication
Business Information Management I	Business, Marketing, and Finance
Business Information Management II	Business, Marketing, and Finance
Business Management	Business, Marketing, and Finance
Career Preparation	Multiple Clusters
Child Development	Education and Training
Commercial Photography I	Arts, A/V Technology, and Communication
Commercial Photography II	Arts, A/V Technology, and Communication
Computer Science I	Science, Technology, Engineering, and Mathematics
Court Systems & Practices.	Law and Public Service
Criminal Investigation	Law and Public Service
Digital Audio Technology I	Arts, A/V Technology, and Communication
Digital Audio Technology II	Arts, A/V Technology, and Communication
Digital Electronics	Arts, A/V Technology, and Communication
Digital Media	Arts, A/V Technology, and Communication
Engineering Design and Presentation I	Science, Technology, Engineering, and Mathematics
Engineering Design and Problem Solving	Science, Technology, Engineering, and Mathematics
Engineering Science	Science, Technology, Engineering, and Mathematics
Entrepreneurship	Business, Marketing, and Finance
Equine Science	Agriculture, Food and Natural Resources
Floral Design	Agriculture, Food and Natural Resources
Forensic Science	Law and Public Service
Fundamentals of Computer Science	Science, Technology, Engineering, and Mathematics
General Employability Skills	Multiple Clusters

Course Name	Cluster
Graphic Design and Illustration I	Arts, A/V Technology, and Communication
Graphic Design and Illustration II	Arts, A/V Technology, and Communication
Greenhouse Operation & Production	Agriculture, Food and Natural Resources
Health Science Theory	Health Science
Horticultural Science	Agriculture, Food and Natural Resources
Hospitality Services	Hospitality and Tourism
Human Growth and Development	Education and Training
Instructional Practices	Education and Training
Interpersonal Studies	Human Services
Introduction to Culinary Arts	Hospitality and Tourism
Landscape Design and Management	Agriculture, Food and Natural Resources
Law Enforcement I	Law and Public Service
Law Enforcement II	Law and Public Service
Lifetime Nutrition and Wellness	Health Science
Medical Terminology	Health Science
Pathophysiology	Health Science
Practicum in Agriculture, Food, and Natural Resources (First time taken)	Agriculture, Food and Natural Resources
Practicum in Business Management	Business, Marketing, and Finance
Practicum in Commercial Photography	Arts, A/V Technology, and Communication
Practicum in Culinary Arts	Hospitality and Tourism
Practicum in Graphic Design and Illustration	Arts, A/V Technology, and Communication
Practicum in Health Science	Health Science
Practicum in Information Technology	Information Technology
Principles of Agriculture, Food, and Natural Resources	Agriculture, Food and Natural Resources
Principles of Applied Engineering	Science, Technology, Engineering, and Mathematics
Principles of Arts, A/V Technology, and Communications	Arts, A/V Technology, and Communication
Principles of Biosciences	Science, Technology, Engineering, and Mathematics
Principles of Business, Marketing, and Finance	Business, Marketing, and Finance
Principles of Construction	Architecture and Construction
Principles of Education and Training	Education and Training
Principles of Health Science	Health Science
Principles of Human Services	Human Services
Principles of Information Technology	Information Technology
Principles of Law, Public Safety, Corrections, and Security	Law and Public Service
Principles of Manufacturing	Manufacturing
Professional Communications	Multiple Clusters

Course Name	Cluster
Project Based Research	Multiple Clusters
Small Animal Management	Agriculture, Food and Natural Resources
Veterinary Medical Applications	Agriculture, Food and Natural Resources
Video Game Design	Arts, A/V Technology, and Communication
Virtual Principles of Business, Marketing, and Finance	Business, Marketing, and Finance

Source.

Figure 9
Blueprint Module Usage Reported by CTE Instructors

Source. CTE Instructor Survey, 2020-2021

Figure 10
Extent of Blueprint Module Usage Reported by CTE Instructors

Source. CTE Instructor Survey, 2020-2021

Prepared and Effective Program Staff

This element addresses the qualifications and professional development opportunities of program staff, including secondary CTE teachers, postsecondary CTE faculty, administrators, and other personnel. Specifically, “ CTE and academic staff collaborate regularly and frequently to coordinate curriculum,

There were 25,797 unique scholars taking courses in CTE POS in grades 6 through 12. Scholars who met criteria based on new guidance from the TEA were assigned CTE indicator codes based on academic records of course completion (TEA, 2021). Definitions for each indicator code are provided in Figure 13 and Appendix F.

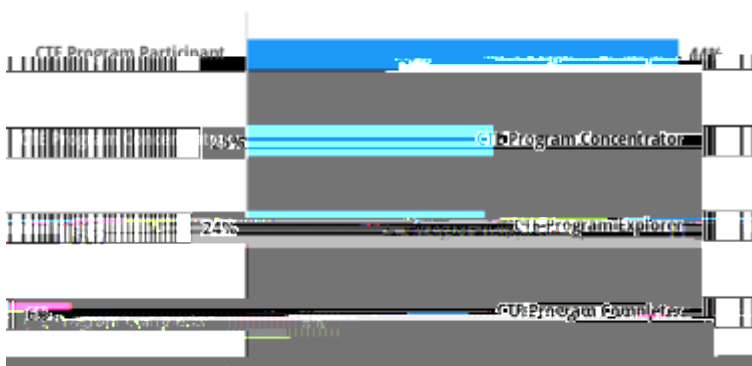
Almost half (44%, n = 11,373) of scholars in the program were CTE participants who had completed one CTE course. CTE explorers (24%, n = 6,275) represented scholars taking a broader approach to their education and included scholars who had completed two or more CTE courses and were not participants, concentrators, or completers. Explorers could also represent students who had completed enough courses in a program of study to be coded as a concentrator or a completer but completed the school year in a district where the region was not approved. CTE concentrators (25%, n = 6,511) represented scholars focusing their education in a specific career path aligned to a program of study. Concentrators were students who had completed and passed two or more courses in the same program of study and were not a completer. The number of scholars who had completed their second course in the same program of study was nearly the same as the number of those who had completed two courses in different POS (Table 7) (TEA, 2021).

Completing a CTE program of study prepares scholars to continue achieving their college and career goals. There were 1,638 CTE completers, scholars who completed the sequence of courses in their CTE program of study (Table 7 and Figure 12).

Table 7
CTE Student Indicator Codes

Source: TEA AISD CTE student records, 2020–2021

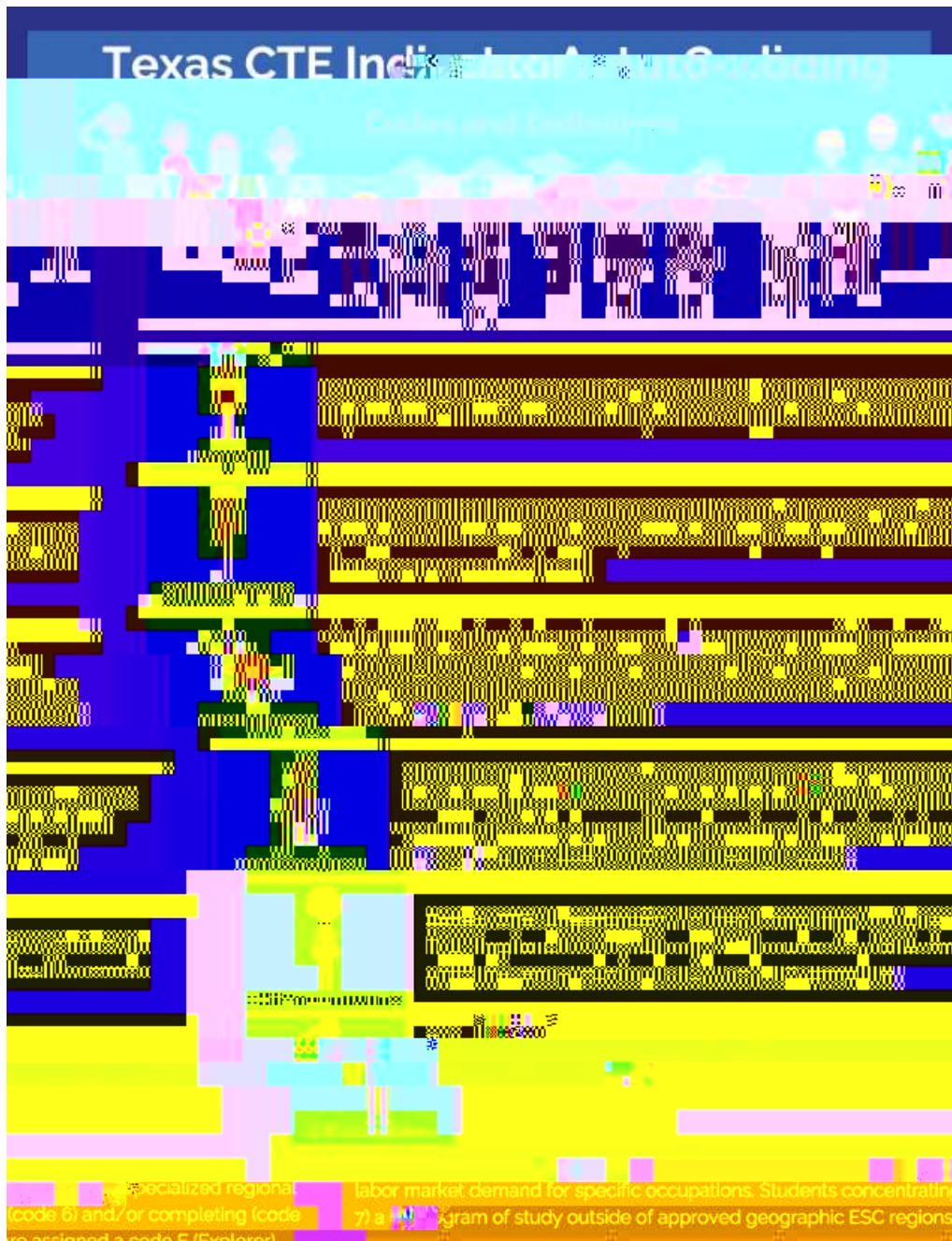
Figure 12
CTE Scholar Engagement, by CTE Indicator Code



Source: TEA AISD CTE student records, 2020–2021

Figure 13

Texas CTE Student Indicator Code Definitions



Source: TEA, 2020-2021

Consistent with the federal requirements for the Strengthening CTE for the 21st Century Act (Perkins V), changes to state career clusters were implemented in 2020–2021. State career cluster changes included combining marketing and finance clusters with business management and administration; the government and public administration cluster joined law, public safety, corrections, and security. The TEA’s auto-

calculation of CTE indicator codes was implemented to provide support to districts in state and federal reporting of CTE concentrators and CTE completers. CTE concentrators and CTE completers were assigned

Figure 14

Top 10 POS Participation, by CTE Concentrators and Completers

Source. TEA AISD CTE student records, 2020–2021

Note. Total number of concentrators and completers in POS was 14,974.

Table 8

2021 POS Participation

Accounting and Financial Services	964
Advanced Manufacturing and Machinery Mechanics	248
Agribusiness	58
Animal Science	301
Applied Agricultural Engineering	87
Automotive	118
Aviation (Flight)	15
Biomedical Science	576
Business Management	685
Carpentry	42
Cosmetology and Personal Care Services	136
Culinary Arts	196
Cybersecurity	699

Electrical	61
Emergency Services	120
Engineering	988
Entrepreneurship	645
Environmental and Natural Resources	114
Exercise Science and Wellness	22
Family and Community Services	252
Food Science and Technology	56
Graphic Design and Multimedia Arts	1626
Health and Wellness	116
Health Informatics	529
Healthcare Diagnostics	909
Healthcare Therapeutic	909
HVAC and Sheet Metal	10
Information Technology Support and Services	56
Law Enforcement	367
Legal Studies	90
Lodging and Resort Management	77
Manufacturing Technology	71
Marketing and Sales	*
Masonry	10
Medical Therapy	631
Networking Systems	158
Nursing Science	691
Plant Science	213
Plumbing and Pipefitting	13
Programming and Software Development	863
Renewable Energy	262
Teaching and Training	206
Travel, Tourism, and Attractions	31
Web Development	154
Welding	*

Source. TEA and AISD records, 2020–2021

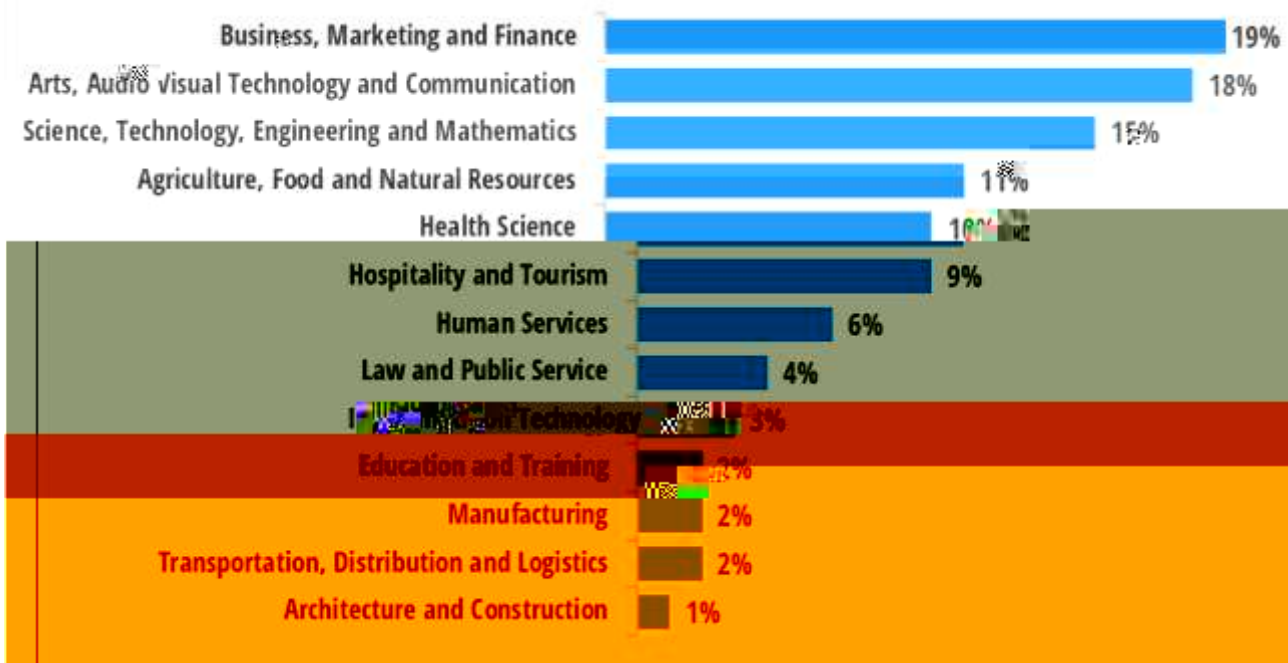
Note. There were 14,974 concentrators and completers. * indicates fewer than 5 students.

Figure 15

Figure 16

Figure 18

Percentage of CTE Concentrators and Completers Who Received Special Education Services, by Cluster



Source: TEA AISD CTE student records, 2020–2021

Note: Total number of distinct concentrators and completers was 10,460.

Among CTE concentrators and completers, there were more males (53%, n = 5,825) than females (44%, n = 4,635). The percentages of males and females in clusters provides information about program accessibility and enrollment to inform participation in nontraditional career fields by gender (Figure 19).

More males pursued studies in Business, Marketing, and Finance (15%), STEM (15%), and Arts, A/V Technology, and Communication (10%), compared with females (7%, 8%, and 9%, respectively).

Figure 19

Percentage of Female and Male CTE Concentrators and Completers, by Career Cluster



Source: TEA AISD CTE student records, 2020–2021

Note: Total number of distinct concentrators and completers was 10,460.

Funding received by Perkins was based on Comprehensive Local Needs Assessment and Perkins criteria to help meet the growing demand for developing high-quality CTE programs including comprehensive POS and opportunities for scholars (Table 9). Spending for CTE, which includes staffing and expenses for program expenditures, is outlined to describe expenditures across 3 years (Table 10).

Table 9

Perkins Funding Amounts, by Year

Source: AISD TEAL records, 2015-2021

Table 10
Expenditure Amounts, by Year

Source. AISD TEAL records, 2015-2021

This report summarizes program data for the 2020-

Finally, continued dialogue about areas of growth and priorities related to industry credentials, college credit, industry alignment and partnerships, work-based learning, college and career readiness, student sharing, and marketing may yield greater understanding of how best to develop, improve, and implement sustainable and innovative CTE programs.

Overall, CTE provided consistency and growth in focus areas amidst challenges with remote instruction due to COVID-19 and implementation of new TEA POS. This report highlights CTE program agility and steadiness amidst change and progress toward fulfilling the CTE vision for all AISD CTE scholars to graduate high school ready for college, career, and life, and to do so from high-quality, standards-based, industry-aligned POS that provide work experience, academic knowledge, technical and professional skills, leadership development, and postsecondary credentials.

Coco, M. B. (2020). *Career and technical education program analysis scorecard report 2018–2019* (DRE Publication 18.53). Austin Independent School District.

Coco, M. B. (2021). *Career and technical education program analysis scorecard report 2019–2020* (DRE Publication 19.59). Austin Independent School District.

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Imperatore, C., & Hyslop, A. (2018). *2018 ACTE quality CTE: Program of study framework*.
<https://www.acteonline.org/wp-content/uploads/2019/01/HighQualityCTEFramework2018.pdf>

Office of Innovation and Development. (2019). *Fact sheet 2019–2020 school year*.

Texas Education Agency. (2019). *Career and technical education*.
https://tea.texas.gov/Academics/College_Career_and_Military_Prep/Career_and_Technical_Education/Career_and_Technical_Education

Texas Education Agency. (2021). *Career and technical education*. <https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technic> noarT7d Tm TJTOa Tm0 0 1 RG[(-)] TJETQq0.00000912 0 612 792 reW*ñBT/F5 10.02

AISD DRE staff collected and analyzed quantitative and qualitative data from AISD information systems, CTE instructors, and scholars.

To provide data with which CTE program staff could measure progress toward its goals and 5YP, quantitative and qualitative data were collected. To address evaluation questions, a variety of measurements were used, including industry-based certifications, dual credits, and course completion records. In each of the three focus areas (i.e., program alignment, quality of instruction, and access and equity), relevant data were analyzed to inform the evaluation question for the focus area. Analyses were conducted using various forms of data.

Staff used district information systems to obtain demographic information, course enrollment, dual credit, certification, and tests. To describe program enrollment, TEA records from the autocalculation of CTE indicator code and AISD information systems provided information for the 2020–2021 school year for each POS, career cluster, and background characteristic. To measure access and equity, AISD information systems supplied scholars' background characteristics and enrollment information from the 2020–2021 school year.

To describe certifications earned by scholars, certification examination scores and pass rates provided records for student performance and certification outcomes. Both IBC and IDC exams were included for purposes of reporting district certification outcomes. To describe dual credits earned by scholars, records from ACC, UT OnRamps, and district systems provided information on dual credits and articulated credits earned.

To describe quality of instruction, DRE staff analyzed data collected from Nepris and CTE survey data. CTE instructors submitted responses to self-assessment items about their experiences with the CTE Program, which included items about the use of Nepris, course blueprints, and Blend.

CTE scholars completed surveys sharing their experiences and perceptions of their CTE courses. DRE staff worked with the CTE program staff to develop and add items to CTE surveys to measure whether CTE programs were meeting scholars' career and college aspirations. Specifically, CTE surveys, such as the AISD CTE Teacher Survey and AISD CTE Scholar Survey, provided administrators', teachers', and scholars' perceptions of the quality of support they received from the CTE administration. District surveys, such as the AISD High School Exit Survey, provided information to assess scholars' college and career preparation and expectations for postsecondary education.

As articulated in the CTE 5YP, DRE staff summarized CTE program data from the 2020–2021 school year.

descriptive statistics (e.g., numbers and percentages). Data were further explored by disaggregating by endorsement, cluster, program of study, campus, CTE indicator code, grade level, race/ethnicity, gender, economic disadvantage status, emergent bilingual status, and special education status. Qualitative data (e.g., open-ended survey responses) were analyzed using content analysis techniques to identify important details, themes, and patterns.

CTE was in the second year of the 5YP implementation during the 2019- 2020 school year. The 5YP aims to prepare all scholars for high-demand, high-skill, and high-wage careers through industry-aligned pathways built on academic, professional, and technical skills; leadership development; work experiences; and postsecondary credentials. In fulfilling the 5YP, the evaluat

Earn an industry-based certification. A graduate must earn an industry-based certification under 19 TAC §74.1003.

Graduate with a

More information on IBC can be found on the TEA website at [http](http://)

Figure 21

Twelve Elements of High-Quality CTE Programs

Source. ACTE

To bring clarity to the burgeoning conversation about high-quality CTE programs and to support CTE administrators and educators in developing and improving CTE POS, the ACTE created an evidence-based framework defining high-quality CTE across 12 elements. CTE at AISD adopted the ACTE framework and worked to elevate all CTE programs to meet all high-quality standards. Areas of focus in the CTE 5YP and

The automated process replaced the manual process that used to be the responsibility of the individual LEAs.

The purpose of this document is to provide LEAs and vendors with a summary of the logic that the TEA uses to determine the CTE Indicator Codes for students participating in Career and Technology programs.

TEA (2021) defined program of study as "sequences of academic and CTE coursework to help students attain a postsecondary degree or industry-recognized certificate or credential, as defined in the Perkins grant

Coco, M. B. (2020).