

MEMORANDUM

January 25, 2021

TO: Michael Love
Executive Director, Career Readiness

FROM: Allison Matney, Ed.D.
Officer, Research and Accountability

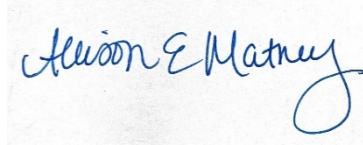
SUBJECT: **CAREER AND TECHNICAL EDUCATION: ENROLLMENT, PERFORMANCE, GRADUATION, AND DROPOUT, HISD, 2019–2020**

Attached is a copy of the Career and Technical Education Report for 2019–2020. This report describes the enrollment, performance, graduation, and dropout results for students enrolled in career and technical education (CTE) courses. CTE courses are offered either as a coherent or non-coherent sequence of courses. The evaluation used descriptive statistics to report findings by comparing students enrolled in a coherent sequence of courses, non-coherent sequence of courses, and students not enrolled in any CTE courses.

Key findings include:

- The ten-year trend of CTE enrollment reveals that the number of students enrolled in CTE courses has substantially increased from 2009 to 2019 (33,634 vs. 44,840).
- For the following subgroups, a higher percentage of students were enrolled in a coherent sequence of CTE courses than a non-coherent sequence of courses during the 2019–2020 school year: Black (24.3% vs. 21.1%), Hispanic (66.1% vs. 59.3%), G/T (18.3% vs. 17.9%), economically-disadvantaged (80.9% vs. 71.7%), special education (7.4% vs. 7.0%), and at risk (68.9% vs. 63.1%).
- A higher percentage of students enrolled in a coherent sequence of CTE courses performed at or above the Approaches Grade Level standard on the 2019 DLA Biology (64.1% vs. 54.5%), English I (46.4% vs. 39.1%), English II (50% vs. 38.7%), and U.S. History (73.9% vs. 71.2%) exams compared to students who were enrolled in a non-coherent sequence of CTE courses.
- On the 2019 District Level Assessment (DLA) U.S. History exam, students enrolled in a coherent sequence of CTE courses (73.9%) outperformed students enrolled in a non-coherent sequence of courses (71.2%) and students who were not enrolled in any CTE courses (68.3%).
- The number of CTE students who graduated from the HISD class of 2019 increased by 9.4% percent over the number who graduated from the class of 2018 compared to a 0.9% percent increase for the district.
- The dropout rate among students enrolled in a coherent sequence of CTE courses for the 2018–2019 school year (2.6%) was lower than the dropout rate for the district (3.9%).
- On average, CTE participating schools had a certification pass rate of 87.2 percent during the 2019–2020 school year. Of these, two schools had pass rates of 100.0 percent.

Further distribution of this report is at your discretion. Should you have any further questions, please contact me at 713-556-6700.

A handwritten signature in blue ink that reads "Allison E. Matney". The signature is written in a cursive style with a large, looping 'y' at the end.

AEM

Attachment

cc: Grenita Lathan, Ph.D.
Silvia Trinh
Yolanda Rodriguez
Richard Cruz



RESEARCH

Educational Program Report

**CAREER AND TECHNICAL EDUCATION:
ENROLLMENT, PERFORMANCE, GRADUATION,
AND DROPOUT, HISD, 2019-2020**

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Career and Technical Education: Enrollment, Performance, Graduation, and Dropout, HISD, 2019–2020

Executive Summary

In alignment with the Carl D. Perkins Vocational and Technical Education Act, the state of Texas created section 134.006 of the Texas Education Code in 2009 to provide grants to educational institutions for career and technical education (CTE) programs. This code allows for the creation of CTE programs that prepare students to meet business industry career demands while allowing state grant funding to coincide with district matching funding for the creation and maintenance of CTE programs (Texas Education Code, 2009). CTE courses are offered either as a coherent or non-coherent sequence of courses. The Houston Independent School District (HISD) offers CTE courses in 16 career clusters in related work- based learning, education, and training through written agreements with business and industry training partners, and practicums from which programs of study can be developed. Programs of study are coherent, articulated sequences of rigorous academic CTE courses that commence in the ninth grade and lead to an associate degree, baccalaureate degree and beyond, industry-recognized certification, and/or licensure (Houston ISD, 2019).

The purpose of this study was to determine the performance of CTE students enrolled in a coherent sequence of CTE courses. The study was guided by four questions and used descriptive statistics based on students' results on the 2019 District Level Assessment (DLA) exams. Students' graduation, dropout, and certification data were also analyzed as well as the demographic and educational attributes of students enrolled in CTE.

Key Findings

- The ten-year trend of CTE enrollment reveals that the number of students enrolled in CTE courses has substantially increased from 2009 to 2019 (33,634 vs. 44,840).
- For the following subgroups, a higher percentage of students were enrolled in a coherent sequence of CTE courses than a non-coherent sequence of courses during the 2019–2020 school year: Black (24.3% vs. 21.1%), Hispanic (66.1% vs. 59.3%), G/T (18.3% vs. 17.9%), economically-disadvantaged (80.9% vs. 71.7%), special education (7.4% vs. 7.0%), and at risk (68.9% vs. 63.1%).
- A higher percentage of students enrolled in a coherent sequence of CTE courses performed at or above the Approaches Grade Level standard on the 2019 DLA Biology (64.1% vs. 54.5%), English I (46.4% vs. 39.1%), English II (50% vs. 38.7%), and U.S. History (73.9% vs. 71.2%) exams compared to students who were enrolled in a non-coherent sequence of CTE courses.
- On the 2019 DLA U.S. History exam, students enrolled in a coherent sequence of CTE courses (73.9%) outperformed students enrolled in a non-coherent sequence of courses (71.2%) and students who were not enrolled in any CTE courses (68.3%).
- The number of CTE students who graduated from the HISD class of 2019 increased by 9.4% percent over the number who graduated from the class of 2018 compared to a 0.9% percent increase for the district.
- The dropout rate among students enrolled in a coherent sequence of CTE courses for the 2018–2019 school year (2.6%) was lower than the dropout rate for the district (3.9%).
- On average, CTE participating schools had a certification pass rate of 87.2 percent during the 2019–2020 school year. Of these, two schools had pass rates of 100 percent.

Recommendations

- The results of this program evaluation indicated that HISD students who are interested in CTE courses should be encouraged to enroll a coherent sequence of CTE courses.
- Administrators, stakeholders, and industry partners should consider the impact of COVID-19 in the completion of work-related practicums, internships, and/or certifications.
- It may be necessary to track students to determine how soon after graduation they enter the workforce, whether their choice of a career is compatible with their CTE career pathways, and to obtain information that will improve the designs of CTE programs of study.

Introduction

Originally created in 1998, the Carl D. Perkins Vocational and Technical Education Act was reauthorized in 2006 to expand support for students who participate in career and technical education (CTE) programs (U.S. Department of Education, 2006, p.S250-2). In alignment with this act, the state of Texas created section 134.006 of the Texas Education Code in 2009 to provide grants to educational institutions for career and technical programs. The code allows for the creation of CTE programs that prepare students to meet business industry career demands while allowing state grant funding to coincide with district matching funding for the creation and maintenance of CTE programs (Texas Education Code, 2009).

Houston Independent School District (HISD) provides students with equal access to CTE programs, services, and activities. HISD provides two types of sequences of CTE courses: (1) a non-coherent sequence and (2) a coherent sequence of CTE courses or career pathways (Houston ISD, 2019). According to the 2019–2020 School Guidelines, “Career Pathways are coherent, articulated sequences of rigorous academic and career and technical education courses commencing in the ninth grade and leading to an associate’s degree, baccalaureate degree and beyond; an industry based certification, and/or licensure organized around sixteen career clusters defined by the Office of Vocational and Adult Education in 1999” (Houston ISD, 2019, p. XX-2). The career clusters are organized into educational programs and curricula based on occupations and common knowledge/skills (Houston ISD, 2019). Career pathways supply flexibility, support, and guidance for students as they examine career goals and select courses (Houston ISD, 2019).

Career pathways can be developed from the following sixteen career clusters: (1) Agriculture, Food & Natural Resources, (2) Architecture & Construction, (3) Arts, A/V Technology & Communications, (4) Business, Management & Administration, (5) Education & Training, (6) Finance, (7) Government & Public Administration, (8) Health Science, (9) Hospitality & Tourism, (10) Human Services, (11) Information Technology, (12) Law, Public Safety, Corrections & Security, (13) Manufacturing, (14) Marketing, (15) Science, Technology, Engineering & Mathematics, and (16) Transportation, Distribution & Logistics (Houston ISD, 2019, p. XX-2). For the 2019–2020 school year, HISD reorganized career pathways into programs of study. **Appendix A** (p. 16), **Table A** (pp.16–18), lists the programs of study, HISD schools where the programs were offered during the 2019–2020 school year, fast growing career opportunities, and the associated certifications/licensures.

Due to the COVID-19 pandemic, adjustments were made to school programming for the 2019–2020 school year. These adjustments included the cancellation of the State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC) exam. Due to these cancellations, the performance of students enrolled in a coherent sequence of CTE courses compared to their non-CTE peers on the 2020 STAAR EOC was not assessed. Instead, this study utilized district-level assessments (DLA) to compare performance. More information on DLA performance is discussed in the Methods section (p.8).

CTE programs typically involve hands-on career preparation utilizing work-based learning, training, and research through contracts with industry partners. These trainings typically include experiences involving internships and practicums alongside CTE classroom instruction in relation to students’ coherent course sequence (Houston ISD, 2019). When specifically examining the impact of COVID-19 on CTE programs, many on-site work-based internships were modified or cancelled due to imminent health concerns.

The purpose of this evaluation was to examine the enrollment, performance, and outcome for students participating in CTE courses and specifically those enrolled in a coherent sequence of CTE courses. This was a descriptive evaluation that focused on the key output of the CTE program, certification, and proxies like DLA results, graduation, and dropout as program performance measures.

This study was guided by four key questions:

1. What were the 2009–2010 through 2019–2020 enrollment trends and the 2019–2020 demographic characteristics of students who were enrolled in HISD CTE programs?

2. What were the key CTE program initiatives implemented in HISD during the 2019–2020 academic year?
3. How did the performance of students enrolled in a coherent sequence of CTE courses compare with their non-CTE peers on the 2019 district-level assessments?
4. What were the longitudinal graduation and annual dropout rates for students enrolled in a coherent sequence of CTE courses compared to HISD students districtwide and students who graduated in the class of 2018 and 2019?

Literature Review

CTE programs were developed to meet companies' needs for qualified employees and reduce the economic gap between workers with college degrees and those without (Rosen, Visher, & Beal, 2018). Due to CTE's well established history in the educational structure, there is ample research devoted to its efficacy. A large portion of CTE research has been conducted through observational methods and focused on the relationship between students who enroll in CTE courses and long-term outcomes like graduation and employment rates.

Dougherty (2016) investigated how CTE exposure and concentration impacted students in Arkansas. The study utilized student-level data on a variety of indicators including demographics, enrollment, course type, graduation, and post-graduation factors. The study found that students who concentrate in CTE are more likely to graduate than those who do not concentrate in CTE (Dougherty, 2016). When compared to students who do not concentrate in CTE, the study also found that students who concentrate in CTE are more likely to be employed or enrolled in a two-year college the year after high school (Dougherty, 2016).

Gottfried and Plasman (2017) utilized transcript data from the National Center for Education Statistics (NCES) to examine CTE concentration and timing of courses at the national level. More specifically, they used linear probability models to investigate if the timing of CTE courses predicted differences in the probability of drop out and on-time graduation. They found that students who took CTE courses in high school were less likely to drop out and more likely to graduate on time (Gottfried & Plasman, 2017). These results were increased when students took these courses in their junior and senior years as opposed to their freshman and sophomore years (Gottfried & Plasman, 2017). Finally, this study did not support that taking CTE courses increased college-going behaviors (Gottfried & Plasman, 2017).

Studies have also examined the association of CTE programs with employment and earning outcomes. For example, students who participate in CTE are more likely to earn higher wages and more likely to be employed upon completion than students who do not participate in CTE (Hollenbeck & Huang, 2014). These findings are consistent with previous studies conducted by Silverberg et al. (2004) that found students who graduate from career academies are likely to earn more than students who do not graduate from career academies.

While research on CTE-related earning potential is compelling, other studies have sought to understand how the quality of CTE programs impacts student outcomes. Dougherty (2018) used ordinary least squares with fixed effects in combination with regression discontinuity methods to investigate the causal implications of enrollment in a specialized, high-quality CTE delivery system in Massachusetts. This study determined that enrollment in a high quality CTE program increased graduation, passing required exams, and certificate completion (Dougherty, 2018). There was also evidence to support these effects were higher for students from low-income backgrounds as opposed to students from high-income backgrounds (Dougherty, 2018).

This review of CTE literature emphasized the impact of graduation and employment outcomes for students enrolled in CTE courses in comparison to those who are not. Furthermore, students who concentrate in CTE courses and have opportunities to participate in high-quality CTE programs tend to

perform better and have increased positive outcomes. Conversely, there is evidence to support that taking CTE courses does not increase general college-going behaviors.

Method

This study used descriptive data to determine the association between CTE course enrollment and student performance, graduation, CTE certification, and annual dropout rates. HISD students enrolled in CTE courses were identified in the Public Education Information Management System (PEIMS) and the Cognos data warehouse. Cognos is an IBM business intelligence and performance management software suite. PEIMS data were collected in the fall of 2018 and 2019. Students enrolled in a non-coherent sequence of courses were coded 1 and those who were enrolled in a coherent sequence of courses were coded 2 in PEIMS and the data warehouse. PEIMS key demographic and educational data for these students, including gender, ethnicity and race, economically-disadvantaged, gifted and talented (G/T), and at-risk¹ statuses, were also used in the analyses.

As previously discussed, the 2020 State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC) exam was cancelled due to the COVID-19 pandemic. For this reason, district-level assessments (DLA) were used to assess student performance. DLA's (or benchmarks) are curriculum-based assessments created by HISD's Curriculum Department that mimic the STAAR (Houston Independent School District, Student Assessment Department; personal communication, 1/8/2020). DLA's are administered in December of each year in the following areas: Algebra I, Biology, English I, English II, and U.S. History. Results from students who had an Algebra I, Biology, English I, English II, or U.S. History DLA exam score from grades 9–12 were included in the study. Students' DLA data used in this study were retrieved from Cognos. The dataset was cleaned and organized for analyses, and student performance level (see below) was calculated. Non-CTE students were coded 0; students enrolled in a non-coherent sequence of courses were coded 1, and those enrolled in a coherent sequence of courses were coded 2 to facilitate the analyses (**Table B, Appendix B**, p.19).

Descriptive analyses were used to compare the CTE group's composition relative to the district by key demographic and educational data. Further analyses were conducted to determine the extent to which students in the study met DLA standards based on the scale scores students attained. The standards were classified as follows:

1. Does not meet grade level
2. Approaches Grade Level standard
3. Meets Grade Level standard
4. Masters Grade Level standard

Standards 2 to 4 above reflect passing standards on DLA exams. Students who attained Masters Grade Level standard would have also attained the Approaches Grade Level standard and Meets Grade Level standard.

Data for students' CTE industry certification were extracted from HISD Research and Accountability Microsoft Excel data files. Graduation data were also obtained from the Research and Accountability Microsoft Access data files and CTE and HISD longitudinal graduation rates were obtained from the Texas Education Agency (TEA) 2019 Accountability Completion, and Graduation and Dropout Summary Report. The evaluation study also used the TEA 2017–2018 Annual Dropout Summary Report for CTE and HISD annual dropout rates. Both graduation and dropout data have a one-year reporting and publication lag.

Limitations

- CTE is not a program or instructional treatment but a coherent and non-coherent sequence of courses legislated by the State of Texas as options for students wishing to pursue careers in the state. Outcome

¹ At-risk indicates whether a student is currently at-risk for dropping out of school using state-defined criteria only. The student must be less than 21 years old and experiencing one or more of 13 criteria including unsatisfactory academic performance, retained in a grade, is pregnant or a parent, homeless, and prior expulsion (Texas Education Agency, 2018).

data for these courses are restricted to dually-enrolled students. DLA exam results are proxy outcomes.

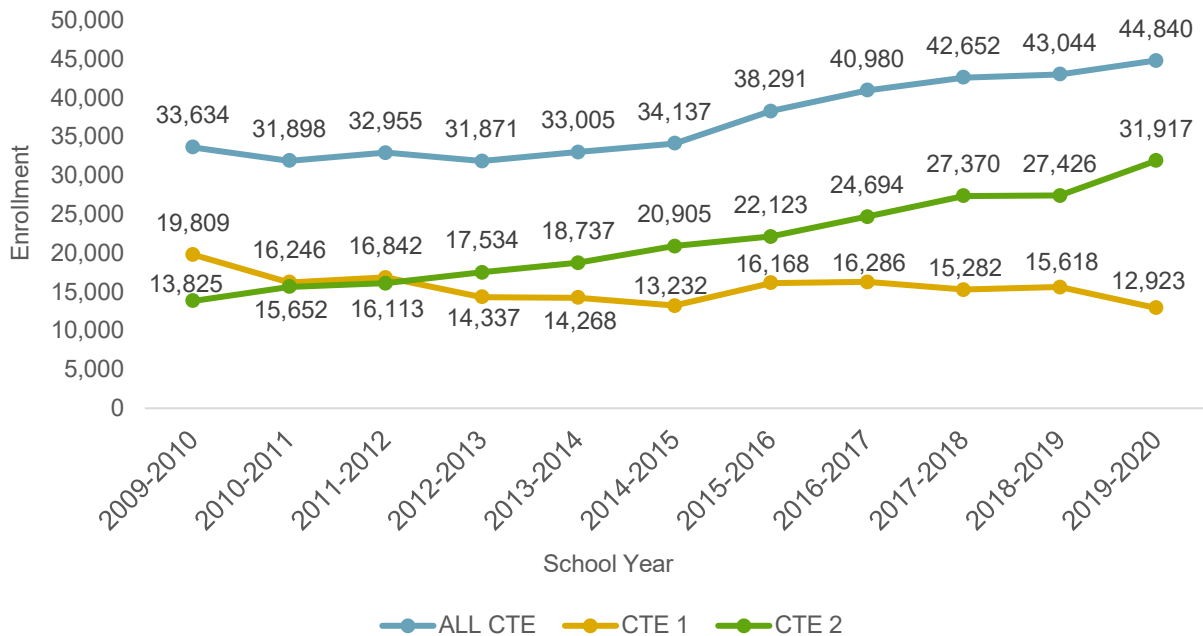
- Students self-enrolled into CTE courses posed a challenge for identifying students with similar motivation to enroll but who did not enroll in CTE courses as a viable comparison or control group for this report.
- Graduation data lag the current cohort of CTE students in this report. Related data used in this report do not refer to the 2019–2020 cohort of students, which presents a challenge for assessing the intended outcome of completing these courses.
- Data on certification does provide information on if and/or when the 2019–2020 cohort of CTE students found employment or pursued higher education in their areas of study as reflected in the objective for offering these courses.
- Eighth grade students can take high school level DLA exams, but only 9th–12th grade students were included in the analyses. The exclusion of 8th grade DLA testers reduced the high school level DLA exam sample size.

Results

What were the 2009–2010 through 2019–2020 enrollment trends and the 2019–2020 demographic characteristics of students who were enrolled in HISD CTE programs?

Figure 1 shows the comparative enrollment of CTE students in HISD between the 2009–2010 and 2019–2020 school years, inclusive.

Figure 1. Comparative CTE Course Enrollments in HISD, 2009–2010 to 2019–2020



Source: PEIMS fall 2019 (Department of Research and Accountability database)

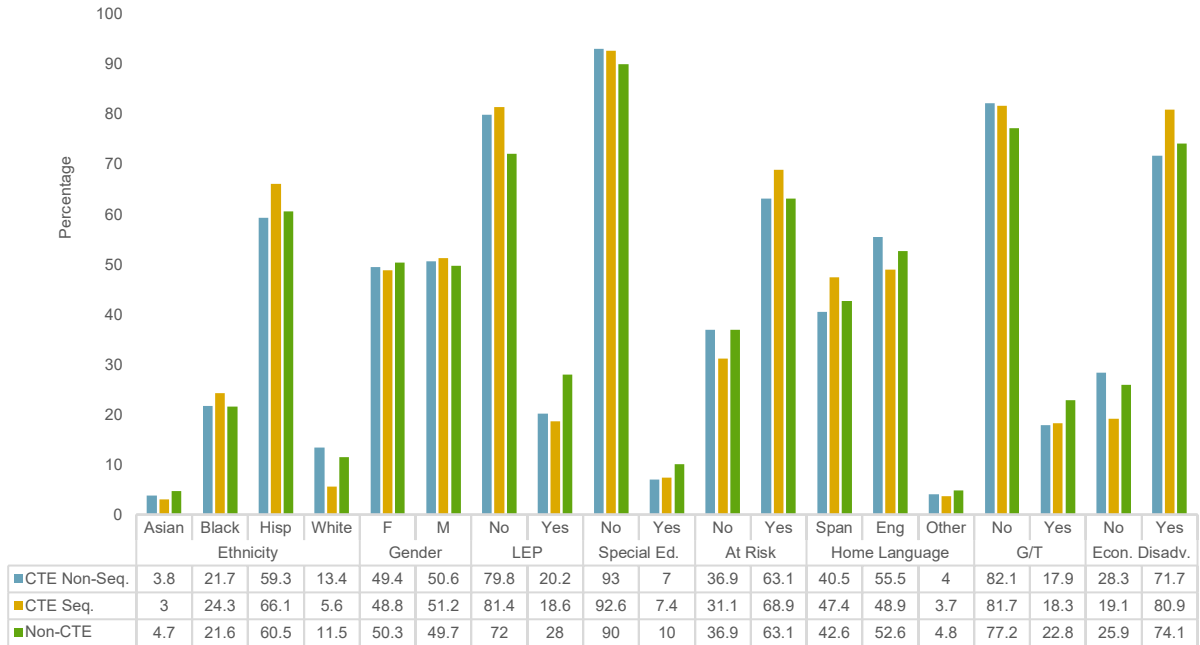
Note: CTE flags were revised in 2016–2017 to 0, 1 and 2 (See Appendix B, Table B1, p. 19); Figures from 2016–2017 reflect only Code 2 after the use of code 3 was discontinued. ADA-Eligibility code “0” has been excluded from the enrollments for 2018–2019.

- Overall, the number of students enrolled in a CTE course or a coherent sequence of courses increased from 43,044 in 2018–2019 to 44,840 in 2019–2020.

- The number of students enrolled in a non-coherent sequence of CTE courses (CTE1) decreased from 15,618 in 2018–2019 to 12,923 in 2019–2020.
- The number of students enrolled in a coherent sequence of CTE courses (CTE2) increased from 27,426 in 2018–2019 to 31,917 in 2019–2020.

Figure 2 shows the demographic composition of students enrolled in CTE courses during the 2019–2020 school year.

Figure 2. Comparative Distribution of CTE and HISD 6–12th Grade Students by Demographic Groups, 2019–2020



Source: PEIMS Fall 2019 (HISD Department of Research & Accountability Microsoft Access Database)

Note: Fem. = Female; Seq. = Sequenced; Hisp. = Hispanic; LEP = Limited English Proficiency; Special Ed = Special Education; G/T = Gifted and talented; Span.= Spanish; Eng.= English. The total CTE Enrollment was N = 44,840, CTE Sequence enrollment was 31,917; and HISD 6th –12th grade enrollment was 95,562.

- A higher percentage of Black (24. 3% vs. 21. 1%) and Hispanic (66. 1% vs. 59. 3%) students were enrolled in a coherent sequence of CTE courses compared to those who were enrolled in a non-coherent sequence of courses in 2019–2020.
- A lower percentage (5.6%) of White students were enrolled in a coherent sequence of CTE courses compared to those (13.4%) who were enrolled in a non-coherent sequence of CTE courses in 2019–2020.
- Lower percentages of LEP (18.6% vs. 20.2%) students were enrolled in a coherent sequence of CTE courses compared to students enrolled in a non-coherent sequence of CTE courses during the 2019–2020 school year.
- Higher percentages of G/T (18.3% vs. 17.9%), economically-disadvantaged (80.9% vs. 71.7%), special education (7.4% vs. 7%), and at risk (68.9% vs. 63.1%) students were enrolled in a coherent sequence of CTE courses compared to their peers who were enrolled in a non-coherent sequence of CTE courses during the 2019–2020 school year.

What were the key CTE program initiatives implemented in HISD during the 2019–2020 academic year?

The following portion of the evaluation is an excerpt from the 2018–2019 Career and Technical Education Report. It has been updated in partnership with the Director of Career and Technical Education to reflect changes for the 2019–2020 academic year.

Under the umbrella of the Career Readiness department, HISD provided career awareness and technical education experiences to students in the 2019–2020 school year. Some key initiatives included: broadening work-based learning opportunities through business partnerships, providing career awareness to elementary students, increasing career exploration experiences for middle school students, providing teacher development support to CTE teachers to increase expertise, and increasing the number of CTE programs offering industry certifications.

In addition to these key initiatives, the Career Readiness department offered a variety of programs through Career and Technical Education (CTE) coursework from which students could select a career program of study. Career programs guide students in course selection regardless of their abilities, talents, or desired levels of education. By taking CTE courses, students are given opportunities to participate in hands-on training within their career pathways of interest. As such, HISD students engaged in opportunities to explore career options and prepare for the workforce and/or post-secondary education. Additionally, several campuses offered dual credit courses to enhance their CTE pathways. The initiatives ensured that all CTE students developed career awareness within their selected program of study and received exposure to professional experiences to develop mastery, confidence, and leadership skills. The following provides additional details regarding key initiatives in the Career Readiness Department:

Broadening Work-Based Learning Opportunities through Business Partnerships:

Business partnerships provided students with enriching learning experiences, including one-on-one mentoring and real-world work opportunities. CTE students were invited to participate in field trips, site visits, and internships at local businesses. These businesses recognized the need to expose local students to various aspects of the world of work and the importance of on-the-job training experiences. Such experiences have been adversely affected by the COVID-19 pandemic but have continued as much as permissible through virtual sessions with our partners. Partners who contributed to the career awareness and advancement of CTE students this school year included, but was not limited to, Next Level Urgent Care, Houston Methodist Hospital, Marek Brothers Construction, Texas Department of Health and Human Services and Houston Goodwill Industries, Junior Achievement of Southeast Texas, Genesys Works, Workforce Solutions, Walgreens, Century AC, City of Houston, Houston Public Library, Gulf States Toyota, Houston Community College, and The Greater Houston Builders Association. Their support through various paid/unpaid internships provided, guest speakers, career fairs, virtual tours, job skills training and other ways were considered invaluable to CTE programming.

Expansion of Industry-Based Certifications Offered:

Students who engaged in Career and Technical Education programs across the district were afforded the opportunity to take an Industry-Based Certification (IBC) intended to increase, enhance, and demonstrate knowledge and skills associated with each pathway of courses. Industry-Based Certifications increased in 2019–2020 by 681 for graduating seniors, totaling 1,672, an increase of 68.7%. The increase was due to the CTE Department working with vendors and certifying agencies to devise plans on how to assist teachers and students to obtain certifications remotely from home. Webinar trainings were provided to onboard teachers and remote testing, proctoring, scheduling exams, and preparing technology for students. Collaboration among campus administrators, teachers, certifying agencies, and HISD Career Readiness Department and the Facilities Department made certification attainment possible. Implementation of supplemental curriculum, credentialing, and accreditation of labs supported the delivery and attainment of IBCs across the district.

Providing Career Awareness to Elementary Students:

HISD elementary school students were exposed to career exploration presentations to increase their career awareness and peak interest in various careers within the local labor market. The Career Ready Wagon provided students with interactive, hands-on demonstrations with information about various

professions. Students also participated in activity stations and hands-on demonstrations that helped them begin to develop connections between their skills, interests, and future career choices. In 2019–2020, the Career Ready Wagon visited 25 elementary schools and engaged over 7,056 students. The Career Ready Wagon is a converted school bus filled with hands-on interactive stations in career exploration. The 2019–2020 season led to the development of new virtual initiatives to adapt to district needs. "Story Time" was a career-ready, virtual read-aloud hour, where students are introduced to various career-ready concepts and themes followed by an at your pace activity for grades Pre-k through 2nd. The first season of "Story Time" was student-led by three summer interns selected through the HISD Virtual Leadership Program. Interns read stories, designed lessons, wrote curriculum, and created media materials in Spanish and English.

Increasing Career Exploration Experiences for Middle School Students:

In 2019–2020, HISD encouraged middle school enrollment in five hybrid courses: Professional Communications, Principles of Information Technology, Principles of Applied Engineering, Touch Data Systems, and Fundamentals of Computer Science. The courses were designed to provide high school level credit, while providing a specific curriculum that allowed students to explore their own interests and aptitude as related to careers. Students were, then, able to make more informed decisions about their high school and endorsement choices. To meet the needs of CTE instructors, "Click to Chat" was conceived. "Click to Chat" is a virtual professional development series led by field experts dedicated to aiding instructors in navigating the virtual classroom. Nine sessions were held starting in March through July with topics that spanned from how to solve technical issues to virtual resources. Sessions were curated for primary and secondary audiences and over 20 campuses attended.

Providing Print and Online Resources for Students and their Families:

The Career Readiness Department maintained an engaging and up-to-date online platform (website) and provided printed and online career program materials (Programs of Study information sheets) to better inform students, parents, teachers, and business partners about career programming throughout the district. The website presence was audience-driven and targeted three audience groups through key functions: PLAN (Students and Families), PREPARE (Teachers), and PARTNER (Businesses). The site can be visited at the following link: <http://www.hisdcareerreadiness.org>.

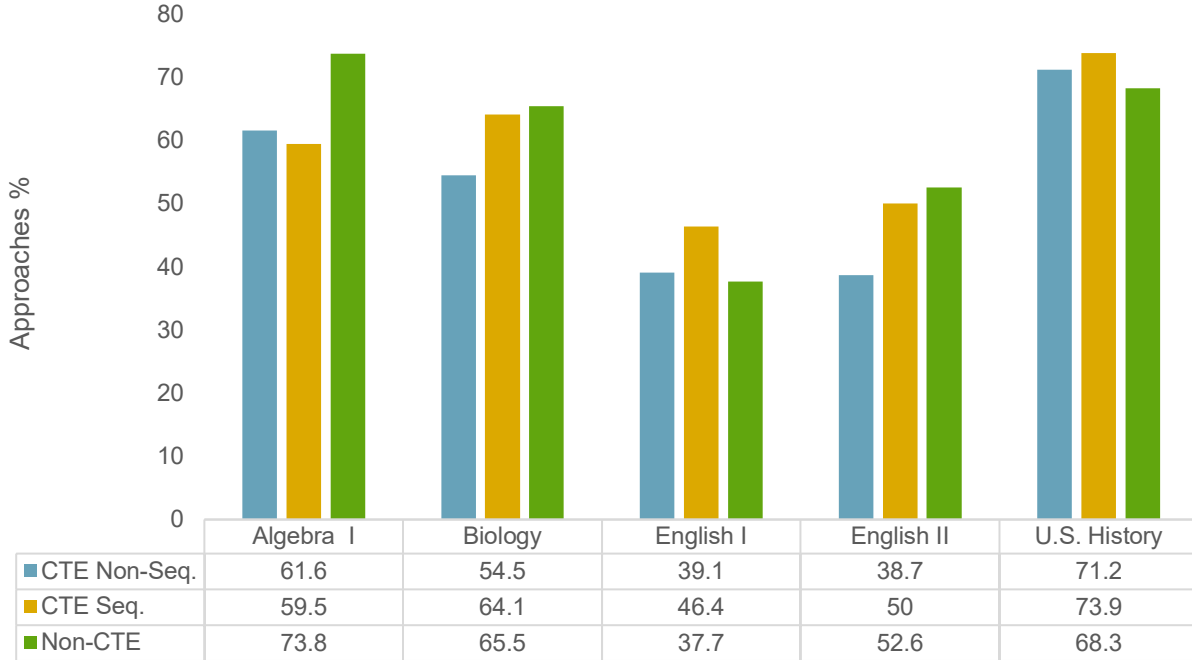
Career and Technology Student Organizations (CTSO)

CTE students were encouraged to join student organizations that were directly related to their selected career pathway. These organizations offered students opportunities to develop leadership and teamwork skills that helped prepare them for the workforce and/or for postsecondary education and training. HISD developed several partnerships with local, regional, and national professional organizations to allow school-level student organizations to participate fully in the related activities of these organizations and to benefit from their professional memberships. Some of these organizations included the Business Professionals of America (BPA), Future Business Leaders of America (FBLA), Family, Career and Community Leaders of America (FCCLA), Health Occupations Students of America (HOSA), Skills USA, and the Technology Student Association (TSA). In the 2019–2020 school year, 75 teachers sponsored 3,203 students to participate in district CTE student organization activities.

How did the performance of students enrolled in a coherent sequence of CTE courses compare with their non-CTE peers on the 2019 DLA exams?

Figures 3 and 4 show the comparative performance of students enrolled in a coherent sequence and non-coherent sequence of CTE courses on the 2018 and 2019 DLA exams.

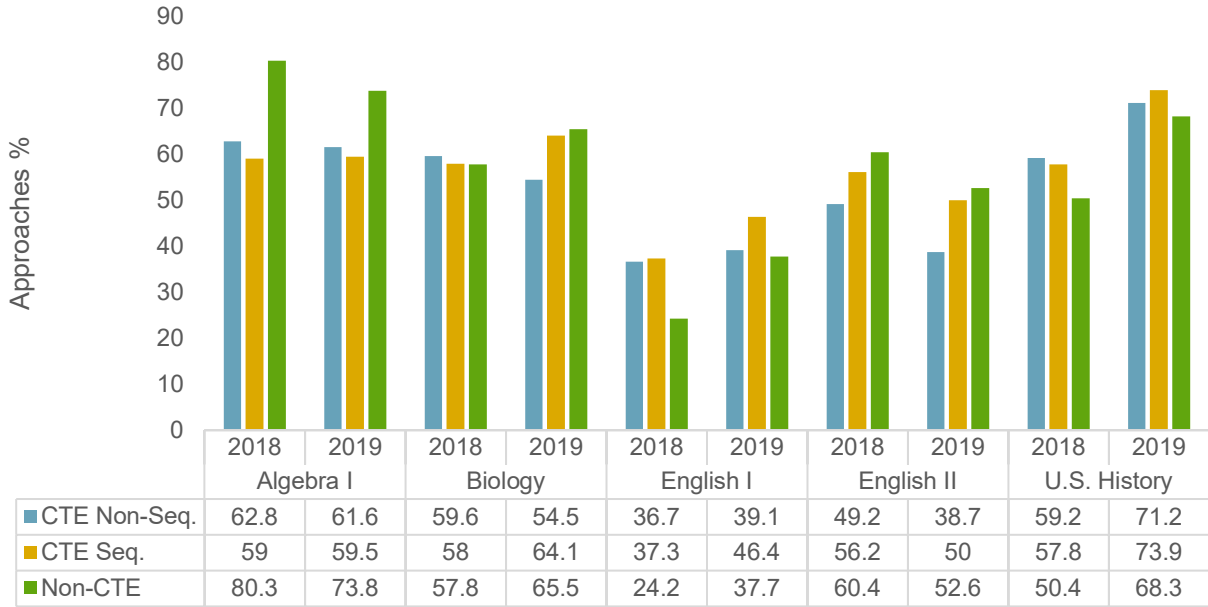
Figure 3. Comparative Percentage of HISD 9th- Through 12th-Grade Non-CTE and CTE Students Who Met or Surpassed Approaches Grade Level Standard on the 2019 DLA Exams



Source: HISD Department of Research & Accountability Microsoft Access DLA archived database

- A higher percentage of students enrolled in a coherent sequence of CTE courses performed at or above the Approaches Grade Level standard on the 2019 DLA U.S. History (73.9%) exams compared to students who were enrolled in either a non-coherent sequence of courses or who were not enrolled in any CTE courses.
- A higher percentage of students enrolled in a coherent sequence of CTE courses performed at or above the Approaches Grade Level standard on the 2019 DLA Biology (64.1% vs. 54.5%), English I (46.4% vs. 39.1%), English II (50% vs. 38.7%), and U.S. History (73.9% vs. 71.2%) exams compared to students who were enrolled in a non-coherent sequence of CTE courses.

Figure 4. Comparative Percentage of HISD 9th- Through 12th-Grade Students by CTE Enrollments Status, who Performed At or Above the Approaches Grade Level Standard on the 2018 and 2019 DLA Exams



Source: HISD Research & Accountability Microsoft Access DLA archived database

- Except for English II, a higher percentage of students enrolled in a coherent sequence of CTE courses in 2019 performed at or above the Approaches Grade Level standard on all four DLA exams compared to students who were enrolled in similar courses in 2018.
- A higher percentage of students enrolled in a non-coherent sequence of CTE courses in 2019 performed at or above the Approaches Grade Level standard on U.S. History (71.2% vs. 59.2%) and English I (39.1% vs. 36.7%) DLA exams compared to students were enrolled in similar courses in 2018.

Table C (Appendix C, p.20) provides the percentage of students who performed at or above the Approaches Grade Level standard on the 2019 DLA exams disaggregated by demographic and educational variables.

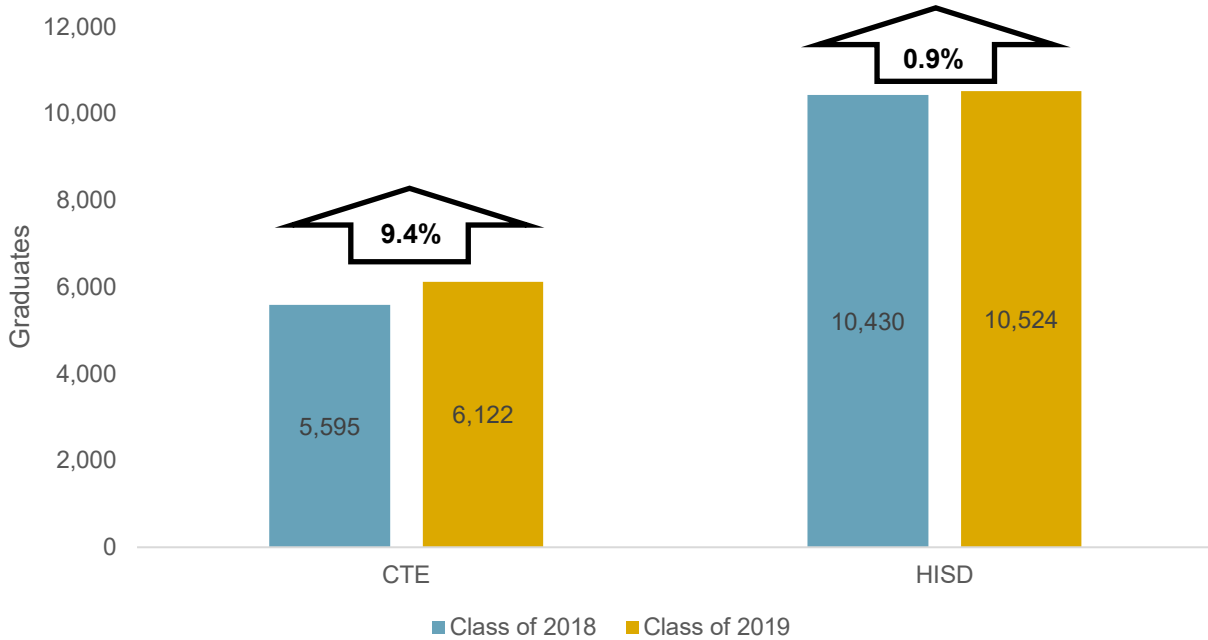
CTE Student Certification

Students could receive an industry certification, license, or Occupational Competency Assessment on successful completion of their CTE courses or programs. **Appendix D** (p. 21) describes the certifications. **Table D, Appendix D** (p. 22) provides the distribution of CTE certification result by school for the 2019–2020 academic year.

What were the longitudinal graduation and annual dropout rates for students enrolled in a coherent sequence of CTE courses compared to HISD students districtwide and students who graduated in the class of 2018 and 2019?

Figure 6 and **Figure 7** show the longitudinal comparative graduation and the annual dropout rates for students enrolled in a coherent sequence of CTE courses. Students from the classes of 2018 and 2019 were compared. District data are provided for comparative purposes as well. Data were calculated for State Accountability per Texas Education Code §39.053 and §39.055.

Figure 6. CTE and HISD Longitudinal Graduates Count Based on the Class of 2018 and Class of 2019

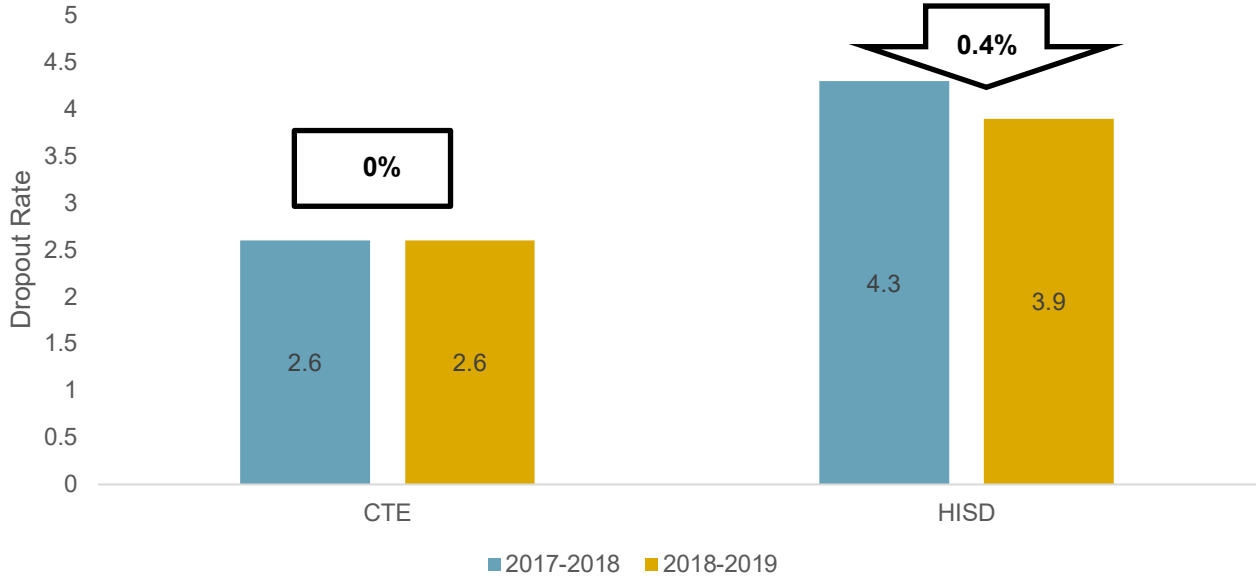


Source: TEA Class of 2018 and Class of 2019 Four-Year Longitudinal Summary Report.

Note: No statutory exclusions were applied. Data align with the State Performance-Based Monitoring Analysis System. Graduation rates are in parentheses

- The district showed a slight increase in its four-year longitudinal graduation rate from 2018 to 2019 (80.9% vs. 81.0%), while the students enrolled in the CTE coherent sequence cohort showed a slight decrease in the graduation rate over the same period (88.9% vs 87.9%).
- The number of CTE students who graduated from the HISD class of 2019 increased by 9.4% percent over the number who graduated from the class of 2018 compared to a 0.9% percent increase for the district.
- While the four-year longitudinal graduation rate for the district was 81.0 percent, the graduate rate for students enrolled in a coherent sequence of CTE courses was 87.9 percent for the Class of 2019.

Figure 7. CTE and HISD Annual Dropout Rates Ninth Through Twelfth Grade, 2017–2018 and 2018–2019



Source: TEA 2016–2017 and 2017–2018 Annual Dropout Summary Report
 Note: No statutory exclusions were applied. Data align with the State Performance-Based Monitoring Analysis System

- The dropout rate among students enrolled in a coherent sequence of CTE courses for the 2018–2019 school year (2.6%) was lower than the dropout rate for the district (3.9%).
- The dropout rate for the district cohort decreased slightly (0.4%) between the 2017–2018 and 2018–2019 school years while the dropout rate for the CTE coherent sequence cohort remained the same between the 2017–2018 and 2018–2019 school years.

Discussion

Trends indicate that the number of students enrolled in CTE courses since the 2009–2010 school year have increased by approximately 33% (33,634 vs. 44,840). Texas Education Code authorizes students to enroll in either a coherent or non-coherent sequence of CTE courses. Since the 2009–2010 school year, the number of students enrolled in a non-coherent sequence of CTE course has been on a downward trend while the number of students enrolled in a coherent sequence of CTE courses has markedly increased. Most students enrolled in a coherent sequence of CTE courses were either Hispanic or Black. Fewer LEP students were enrolled in a coherent sequence of CTE courses than LEP students who were enrolled in a non-coherent sequence of CTE courses. More economically-disadvantaged, G/T, and at-risk students were enrolled in a coherent sequence of CTE course compared to their peers who were enrolled in a non-coherent sequence of CTE courses.

The report demonstrates that higher percentages of students enrolled in a coherent sequence of CTE courses met the Approaches Grade Level standard on all 2019 DLA exams except for the Algebra I DLA exam. Also, a higher percentage of students enrolled in a coherent sequence and a non-coherent sequence of CTE courses met the Approaches Grade Level standard on the English I and U.S. History 2019 DLA exam compared to their peers in HISD who were not taking any CTE courses. When comparing the 2019 DLA exam scores to the previous year, a higher percentage of students enrolled in a coherent sequence of CTE courses scored at or above the Approaches Grade Level standard on the Biology, English I, and U.S. History DLA exams.

From 2018 to 2019, the number of CTE students who graduated increased by 9.4%. Even though the percentage of CTE students who graduated in 2018–2019 was slightly lower than the previous year (87.9% vs. 88.9%), the CTE longitudinal graduation rate was still higher than that of the district for the class of 2019 (87.9% vs. 81%). The district had a 0.9% increase in the number of students who graduated between the class of 2018 and 2019. The dropout rate for CTE students remained the same from the 2017–2018 to 2018–2019 academic year (2.6%). While the dropout rate for the district decreased by 0.4% from the 2017–2018 to 2018–2019 academic year (4.3% vs. 3.9%), the dropout rate for CTE students in 2018–2019 was lower than that of the district for 9th–12th grade students (2.6% vs. 3.9%). In terms of industry certifications, 87.2% of students passed their certifications for the 2019–2020 academic year.

The results of this evaluation indicated that students enrolled in a coherent sequence of CTE courses typically performed better than comparable students enrolled in a non-coherent sequence of CTE courses. Current trends also indicated that more students were enrolling in a coherent sequence of CTE courses over time while fewer students were enrolling in a non-coherent sequence of CTE courses over time. When examining student enrollments across HISD, students enrolled in a coherent sequence of CTE courses were more likely to graduate high school and less likely to drop out. Most students who enroll in a coherent sequence of CTE courses were identified as economically-disadvantaged, Hispanic, or Black. This may indicate that economically-disadvantaged, Hispanic, or Black students are more likely to elect to enroll in a coherent sequence of CTE courses.

References

- Dougherty, S.M. (2016). Career and Technical Education in High School: Does It Improve Student Outcomes? Washington, DC: Thomas B. Fordham Institute.
files.eric.ed.gov/fulltext/ED570132.pdf
- Dougherty, S. M. (2018). The Effect of Career and Technical Education on Human Capital Accumulation: Causal Evidence from Massachusetts. *Education Finance and Policy* 13, 2: 119-148.
- Gottfried, M. A., & Plasman J.S. (2017). Linking the Timing of Career and Technical Education Coursetaking with High School Dropout and College-Going Behavior. *American Educational Research Journal* 55, 2: 325-361.
- Hollenbeck K, & Huang, W. (2014). Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State. *Upjohn Institute Technical Report No. 13-029*. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
http://research.upjohn.org/up_technicalreports/29/
- Houston ISD. (2019). *School guidelines 2019–2020*. Houston, TX: Author.
<https://www.houstonisd.org/site/handlers/filedownload.ashx?moduleinstanceid=276861&dataid=255814&FileName=2019-2020%20School%20Guidelines%20v2.pdf>
- Rosen, R., Visher, M. & Beal, K. (2018). Career and Technical Education: Current Policy, Prominent Programs, and Evidence. MDRC. files.eric.ed.gov/fulltext/ED590008.pdf
- Silverberg, M. et al. (2004) National Assessment of Vocational Education - Final Report to Congress Executive Summary. Washington, D.C.: U.S. Department of Education, Office of the Under Secretary of Policy and Program Study Service.
<http://www2.ed.gov/rschstat/eval/sectech/nave/naveexesum.pdf>
- Texas Education Code (2009). *Sec. 134.006. Grants to Educational Institutions for Career and Technical Education Programs. Chapter 134. Jobs and Education for Texans (JET) Grant Program.*
<https://statutes.capitol.texas.gov/Docs/ED/htm/ED.134.htm>
- U.S. Department of Education. (2006). *Carl D. Perkins Career and Technical Education Act of 2006 [Public Law 109-270]*. <https://www.govinfo.gov/content/pkg/BILLS-109s250enr/pdf/BILLS-109s250enr.pdf>.

Appendix A: CTE Programs of Study

Table A. CTE Programs of Study, Career Opportunities, Certification, and Licensures Available to HISD Students, 2019–2020

CTE Programs of Study	High School Where Offered	Fast-Growing Career Opportunities	Certifications and Licensures
Agriculture, food and natural resources	Austin	Veterinary Technicians	Certified Veterinary Assistant (CVA Level 1) Texas Floral Design- Level 1 Certification
	Bellaire		
	Booker T. Washington	Agricultural Inspectors	
	Chavez		
	Harper Alternative School	Forest and Conservation Workers	
	Lamar		
	Madison		
Architecture and Construction	North Forest		NCCER - Construction Technology NCCER – HVAC NCCER- Plumbing AutoCAD - Certified Associate Certified SOLIDWORKS Associate (CSWA)
	Worthing		
	Austin	Construction management	
	Booker T. Washington		
	Furr	Civil Engineers	
	Houston MTSC		
	Jones Futures	Heating and Cooling Technicians	
	Milby		
	North Forest		
	Northside		
Arts, AV Technology & Communication	Scarborough		Adobe Certified Associate (ACA) Video communication Adobe Certified Associate (ACA)- Visual Communication
	Wheatley		
	Wisdom		
	Bellaire	Audio/Visual Technicians	
	Chavez		
	Furr	Multimedia Artist and Animators	
	Heights		
	Houston		
	Kashmere	Technical Writers	
	Lamar		
Business, Finance & Marketing	Northside		Microsoft Office Certified Master A*S*K Business Fundamental NOCTI-Business Sales Force
	Sharpstown		
	Waltrip		
	Westside		
	Yates		
	Austin	Human Resource Specialist	
	Bellaire		
	Heights	Sales Agents and Managers	
	Houston Academy of International Studies	Market Research Analyst	
Education and Training Services	Lamar		Early Childhood Education Assessment and Certification Pre-professional Certification in Education Fundamental
	Liberty		
	North Houston Early College		
Education and Training Services	Sterling	Teacher	
	Westside	Coaches and Recreation Instructors	
	Wisdom	Social Workers	

Table A. CTE Programs of Study, Career Opportunities, Certification and Licensures Available to HISD Students, 2019–2020 (continued)

CTE Programs of Study	High School Where Offered	Fast-Growing Career Opportunities	Certifications and Licensures
Government and Public Administration	High School for Law and Justice	Foreign Service Officer	
		Political Science Teacher	
		Paralegal	
Health Science	Chavez DeBakey Jones Futures Heights Long Futures Madison Milby Sharpstown Waltrip Westbury Westside	Dental Assistant	Certified Clinical Medical Assistant (CCMA)
		Biomedical Technician	Phlebotomy Technician Certification (CPT)
		Registered Nurse	Certified patient Care Technician/Assistant (CPCT/A)
			Pharmacy Technician Trainee
			Nursing Assisting Assessment (CNA)
			National Entry Level Dental Assistant (NELDA)
			ServSafe Food Handlers
Hospitality and Tourism	Barbara Jordan Harper Alternative Lamar Milby Northside Westside Wheatley Worthing	Hotel manager	
		Chef and Head Cook	
		Food and Beverage Service Worker	
Human Services	Barbara Jordan Houston MTSC Milby	Massage Therapist	Texas Cosmetology Operator License
		Spa Manager	
Information Technology	Austin Bellaire Booker T Washington Eastwood Academy Heights High School for Law and Justice Kinder High School for the Performing and Visual Arts Houston MTSC Lamar Madison Mickey Leland Milby North Forest Northside Scarborough Sharpstown South Early Waltrip Westbury Westside Wisdom Wheatley Worthing	Computer Programmers	BISCI- Cabling Installation
		Computer Engineers	CompTIA – Strata, A+, Network+ Security+
		Database Administrators	Adobe Certified Associate– Web Authoring, Interactive Media
			CIW–Web Design Specialist, Web Security Associate, Internet Business Associate
			STARS Certification
			SPACE Certification
			ESRI Technical Certification–
			Desktop
			MOS Word, Excel, PowerPoint, Access

Table A. CTE Programs of Study, Career Opportunities, Certification and Licensures Available to HISD Students, 2019–2020 (continued)

CTE Programs of Study	High School Where Offered	Fast-Growing Career Opportunities	Certifications and Licensures
Law, Public Safety, Corrections and Security	Chavez High School for Law and Justice	Emergency Medical Technician	Texas Commission on Fire Prevention Certificate
	North Forest	Police Officer	State Emergency Medication (EMT) Certification
	Sterling	Paralegal	
	Waltrip		
	Westbury Wisdom	Foreign Service Officer Political Science Teacher	
Manufacturing	Houston MTSC	Welder	Autodesk Certified User
	Barbara Jordan		Certified SOLIDWORKS Associate (CSWA)
	Madison	Machinist	NCCER–Welding
	Milby Wisdom	Technician	AWS Certification
S.T.E.M.	Austin	Geological Technician	Certified Clinical Medical Assistant (CCMA)
	Chavez		
	Booker T. Washington	Geoscientist	Autodesk Certified User
	Eastwood Academy		
	Energy Institute	Engineer	Certified SOLIDWORKS Associate (CSWA)
	Furr		
	Heights		
	Houston MTSC		
	Kashmere		
	Lamar		
	Madison		
	Mickey Leland		
	Milby		
	South East Early College		
	Waltrip		
Westbury			
Westside			
Young Women’s College Prep Academy			
Transportation, Distribution & Logistics	Austin	Merchant Mariner	ASE-Brakes, Electronic/Electrical Systems, Heating and A/C, Engine Repair
	Barbara Jordan		
	Heights	Auto/Diesel Technician	
	Houston MTSC		
	Madison	Airline Pilot	Certified Logistics Associate (CLA)
	North Forest		
	Sterling		
	Waltrip		
	Westbury		
	Wheatley		CLT
Yates		GLA FAA Airframe & Powerplant Technician	

Source: CTE Programs of Study. Houston ISD Career Readiness website: <https://www.houstonisd.org/Page/182220>.

Appendix B: CTE Codes

Table B. Description of Career and Technical Education Codes, Texas Education Data Standards, 2019–2020				
Code Table ID	Name	XML Name	Date Issued	Date Updated
C142	CAREER-AND-TECHNICAL-ED-INFO-CD	TX-CareerAnd TechnologyEdType	3/3/1993	3/1/2016
Code	Translation			
	When assigning the Career and Technical Indicator Code, include enrollment in all Career and Technical Education (CTE) courses, regardless of course funding weight			
0	Not Enrolled in a CTE Course			
1	Enrolled in A CTE Course: A student in grades 6-8 who is taking a CTE course as of the fall snapshot date or completed a CTE course by the end of the school year. A student in grades 9-12 who is taking a CTE course as of the fall snapshot date or completed a CTE course by the end of the school year and the student’s 4-year plan of study does not outline a coherent sequence of courses in CTE			
	The following code is for students who on the fall snapshot date: (a) have a 4-year plan to take a coherent sequence (2 or more CTE courses for 3 or more credits) of courses in CTE, and (b) are enrolled in or have completed a semester of CTE course(s), which are part of their CTE coherent sequence of courses. If a student’s 4-year plan changes, then the student could go from a code 2 to a 0 or 1 in a subsequent school year			
2	Participant in A Coherent Sequence of Courses: A student in grades 9-12 who is enrolled in a sequential course of study, which develops occupational knowledge, skills, and competencies relating to a CTE program of study. The student must have a 4-year plan of study to take 2 or more CTE courses for 3 or more credits			

Source. 2019–2020 Texas Education Data Standards, tealprod.tea.state.tx.us/TWEDS/66/0/0/0/CodeTable/List/8023

Appendix C: DLA Testers

Table C. Percentage of HISD Non-CTE and CTE Coherent-Sequenced Students Who Performed At or Above Approaches Grade Level Standard on the DLA Exams, Disaggregated by Demographic and Educational Attributes

Demographic and Educational Variable		Non-CTE										Coherent CTE									
		Algebra I		Biology		English I		English II		U.S. History		Algebra I		Biology		English I		English II		U.S. History	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Ethnicity	Asian	152	94.4	116	89.2	71	62.3	91	87.5	36	85.7	53	67.1	156	78.0	91	56.2	144	69.9	62	77.5
	Blacks	371	73.3	246	66.9	129	37.3	113	51.0	171	72.2	781	62.7	1,001	68.2	650	45.7	955	51.8	867	76.3
	Hispanic	1,425	70.1	903	60.0	512	37.5	354	40.1	397	58.6	1,969	57.6	2,144	60.5	1,937	45.2	2,241	46.4	2,161	72.3
	White	333	83.4	292	75.5	96	28.8	217	74.8	180	90.9	108	65.5	236	74.9	116	67.8	290	71.8	133	80.6
Gender	Female	1,263	74.9	952	67.9	522	41.3	493	56.9	466	71.9	1,562	65.1	1,907	69.2	1,631	53.3	2,066	56.0	1,536	74.2
	Male	1,073	72.6	651	62.4	310	32.9	317	47.0	341	64.0	1,378	54.2	1,679	59.2	1,195	39.5	1,619	44.0	1,712	73.6
LEP	No	1,949	81.4	1,344	81.4	724	44.0	770	64.1	670	79.0	2,187	66.2	2,918	71.4	2,449	55.8	3,456	57.5	2,827	79.5
	Yes	387	50.1	259	39.0	108	19.2	40	11.7	137	41.1	753	45.9	668	44.4	377	22.7	229	16.9	421	50.1
Special Ed.	No	2,272	75.1	1,558	67.1	817	39.2	801	54.3	780	69.7	2,768	61.4	3,402	65.5	2,738	48.6	3,583	52.1	3,052	75.8
	Yes	64	45.4	45	36.0	15	12.4	9	13.9	27	43.6	172	39.6	184	45.8	88	19.1	102	20.8	196	53.1
At-Risk	No	1,465	92.8	940	89.0	501	56.5	519	80.5	368	90.0	812	84.8	1,466	85.3	1,311	76.3	1,697	81.7	809	91.2
	Yes	871	54.9	663	47.7	331	25.1	291	32.5	439	57.9	2,128	53.4	2,120	54.7	1,515	34.7	1,988	37.6	2,439	69.5
Home Language	Spanish	994	68.4	598	55.7	365	37.6	209	33.3	256	51.9	1,440	56.6	1,520	57.8	1,327	42.1	1,479	43.2	1,551	70.3
	English	1,202	77.9	906	73.0	409	36.6	574	66.7	512	81.7	1,416	62.7	1,923	70.5	1,424	52.0	2,066	56.3	1,616	78.4
	Other	140	83.3	99	76.2	58	50.0	27	51.9	39	63.9	84	60.0	143	60.9	75	38.3	140	52.8	81	62.8
Gifted & Talented	No	1,252	62.2	921	54.7	419	26.1	341	33.3	627	64.0	2,519	57.0	2,625	59.0	1,954	39.8	2,598	43.2	2,824	72.0
	Yes	1,084	94.1	682	89.5	413	68.5	469	90.7	180	89.1	421	79.7	961	84.3	872	74.2	1,087	80.4	424	88.7
Economically Disadvantaged	No	727	83.7	614	80.7	279	44.2	433	78.2	323	88.3	358	65.3	709	74.2	478	68.2	905	69.0	518	82.6
	Yes	1,609	70.1	989	58.7	553	35.1	377	38.2	484	59.4	2,582	58.7	2,877	62.0	2,348	43.6	2,780	45.9	2,730	72.4

Source: HISD Research & Accountability Microsoft Access DLA archived database; PEIMS fall 2019 (Department of Research and Accountability database).

Note: The shaded light green highlights subgroups where 50 percent or more of students performed at or above the Approaches Grade Level standard. The darker green highlights subgroups where 50 percent or more of students performed at or above the Approaches Grade Level standard and where student groups enrolled in a coherent sequence of CTE courses outperformed their peers who were not enrolled in any CTE courses and who took the 2019 DLA exams.

Appendix D: CTE Certifications

Industry Certification

Industry certification is a credential that validates the ability to perform certain basic tasks essential to a specific industry. These certifications are usually created by a specific company such as ACA (Adobe Certified Associate).

License

A license is a Texas government-issued certificate that indicates completion of a training program with a minimum number of hours and successful acquisition of basic skills essential for specific trades or professions. Examples would be a state-issued Cosmetology license or a Licensed Pharmacy Technician Trainee.

Occupational Competency Assessment

An occupational competency assessment is a technical skills assessment created by groups such as the A*S*K Business Institute, which contends that the student has mastered job-ready technical knowledge. Examples include the A*S*K Business Fundamentals test (basic skills in Human Resources) and NCCER Welding.

Note: Other Houston ISD approved program-specific certifications, which are administered early for safety reasons or are needed to advance to the end of program certifications, are also available such as ServSafe; NCCER-Core; CPR- infant and adult; OSHA; MOS and so on.

Table D. Distribution CTE Certification Results by School, HISD, 2019–2020

Table D. Distribution CTE Certification Results by School, HISD, 2019–2020			
School	N	Passed	% Passed
Lamar High School	43	43	100.0
Eastwood Academy	170	170	100.0
DeBakey HSHP	1,076	1,075	99.9
High School for Law and Justice	182	181	99.5
Sterling High School	578	575	99.5
North Forest High School	329	325	98.8
Jones High School	87	85	97.7
Westbury High School	545	531	97.4
Worthing High School	75	73	97.3
Westside High School	106	102	96.2
Houston MSTC	1,516	1,439	94.9
Heights High School	1,082	1,082	94.9
Mount Carmel Academy High School	15	14	94.9
Washington High School	36	34	94.4
East EC High School	77	72	93.5
Chavez High School	252	235	93.3
Scarborough High School	117	109	93.2
H AIS High School	251	234	93.2
Sharpstown International	55	51	92.7
Waltrip High School	426	392	92.0
Northside High School	48	44	91.7
Kashmere High School	11	10	90.9
Austin High School	673	612	90.9
Furr High School	74	66	89.2
Milby High School	266	230	86.5
North Houston EC High School	165	141	85.5
Bellaire High School	386	326	84.5
Madison High School	430	323	75.1
Challenge EC High School	216	160	74.1
Wisdom High School	1,201	856	71.3
South EC High School	226	159	70.4
Energy Institute High School	35	21	60.0
Yates High School	9	5	55.6
Long Academy	2	1	50.0
Wheatley High School	638	318	49.8
Sharpstown High School	205	26	12.7
Grand Total	11,603	10,120	87.2

Source: HISD Research & Accountability Microsoft Excel database.