
PUBLIC SCHOOL CAREER AND TECHNICAL EDUCATION LABOR MARKET RELEVANCE AND COURSE VARIETY

Public school district Career and Technical Education programs are some of the first opportunities Texas students have to gain knowledge and skills that directly relate to a particular industry or occupation. School districts have relatively wide discretion over which courses are offered in these programs, especially when compared to more prescriptive academic course requirements. These course options are organized into 16 different broad occupational categories. Students can choose to have a stronger focus on Career and Technical Education while in high school by developing a four-year academic plan that includes taking two or more Career and Technical Education courses within a particular occupational focus.

School district Career and Technical Education program administrators must consider a variety of factors when deciding which courses the program will offer. Increasing course variation to give students the opportunity to gain knowledge and skills across a greater range of occupational categories can conflict with another significant programmatic component—ensuring the courses offered relate to current and emerging occupations for which there is, or there is projected to be, a regional labor market need. While schools districts residing closer to or within major metropolitan areas and which have greater student enrollment can offer more course opportunities in a greater variety of broad occupational categories, they do so at the risk of reducing the number of courses that have regional labor market relevance. Conversely, more rural school districts offer fewer occupational options for students, but have a greater share of their total Career and Technical Education courses offered within careers for which there is regional labor market demand.

FACTS AND FINDINGS

- ◆ Career and Technical Education concentrators are students that choose to take a coherent sequence of two or more program courses. In school year 2009–10, these students made up 65 percent of the state’s secondary student Career and Technical Education course enrollment.
- ◆ Approximately 73 percent of Career and Technical Education courses delivered in school year 2009–10 related to a regional labor market need by broad occupational similarities.

- ◆ School districts closer to a major metropolitan area deliver a wider variety of Career and Technical Education courses, while more rural school districts offer fewer courses, but have a greater share of their CTE courses aligned to regional labor market needs.
- ◆ Career and Technical Education courses related to information technology, human services, and agriculture, food, and natural resources had the largest share of student Career and Technical Education course enrollment in school year 2009–10.

DISCUSSION

As a significant component of Texas’ workforce development system, school district Career and Technical Education (CTE) programs are the primary means by which a student can obtain career-focused instruction in public education. These programs have a long history in public education dating back to the early 1900s. CTE programs offered through school districts must manage meeting employer demands for current and future jobs, offering courses that engage students’ interests, and be of sufficient academic rigor to ensure students exit the program ready for college or the workforce.

Texas Education Code Section 29.181 specifies the goals of CTE as mastery of the basic skills and knowledge necessary for managing the dual roles of family member and wage earner; as well as gaining entry-level employment in a high skill, high-wage job or continuing the student’s education at the postsecondary level.

CTE STUDENT CATEGORIES

Students may take CTE courses either individually as an elective or as part of a coherent sequence of CTE courses. Students that choose to take a coherent sequence are referred to as CTE Concentrators. These students are required to create a four-year program of study; a roadmap that details the types of courses that student will take in high school. This plan uses the Recommended High School Program as an academic base and includes completing two or more CTE courses for three or more credits, typically within a particular career or occupational type. These plans are reviewed annually by counselors and teachers with students able to

make changes to their program of study if and when their interests change. Students can include CTE courses within their program of study that provide the opportunity for the student to acquire postsecondary credit. **Figure 1** shows the total secondary student enrollment and total secondary CTE Concentrator enrollment by school district community type. Rural school districts have the largest percentage of their secondary student enrollment categorized as CTE Concentrators.

CTE COURSE ORGANIZATION

Texas adopted the federal organization of CTE courses in 2005. This framework reorganized all CTE courses into “career clusters,” 16 groupings of occupations and broad industries based on similarities such as common knowledge and skills. The organizational method encompasses a broad swath of careers and organizes CTE courses around common occupational themes such as finance, marketing, or human services.

This course reorganization corresponded with a revision of the CTE curriculum managed by the Texas Education Agency that resulted in a remapping of the CTE course landscape, reducing the total number of CTE courses eligible for state funding from approximately 600 to 190. Approved in June 2009 by the State Board of Education, these courses were developed to meet college readiness standards and have appropriate technical skill attainment measures. Each was placed within a career cluster and had a corresponding program of study aligned to postsecondary education. These courses comprise approximately 34 percent of secondary courses (grades 9–12) offered statewide.

In addition to these courses, school districts also have the option to create CTE-specific “innovative courses.” These are courses developed by the school district that relate to certain careers or occupations that do not have state-approved curriculum. School districts may apply to the State Board of Education to seek approval to offer these courses. Following approval, any school district may offer these courses. As of October 2010, there have been 24 approved innovative courses. Examples include Disaster Response and Video Game Design.

School districts may also offer Tech Prep and Advanced Technical Credit courses. Tech prep courses are CTE courses that have a corresponding college-level equivalent and for which a student may accrue college credit held in escrow with the community or technical college partnering with the school district to offer these courses. These partnerships are governed by local articulation agreements between the school district and community or technical college. School districts may also offer Advanced Technical Credit courses which are statewide articulated courses accepted at participating Texas community and technical colleges.

In contrast to prescriptive academic course offering regulations, school districts have relatively wide discretion on which CTE courses they offer. Texas Administrative Code Section 74.3 requires school districts to offer CTE courses that fall within, at a minimum, three of the 16 career clusters.

Figure 2 shows the 16 clusters and the number of CTE courses eligible for state funding that fall within the cluster for school year 2010–11. Innovative courses are also included, but do not relate to any one specific cluster.

**FIGURE 1
TOTAL SECONDARY STUDENTS AND TOTAL SECONDARY CTE CONCENTRATORS
BY SCHOOL DISTRICT COMMUNITY TYPE
SCHOOL YEAR 2009–10**

COMMUNITY TYPE	TOTAL STUDENTS		CTE CONCENTRATORS		
	NUMBER	DISTRICT AVERAGE	NUMBER	DISTRICT AVERAGE	PERCENTAGE OF CTE
Major Urban	230,163	23,016	141,082	14,108	61%
Major Suburban	437,650	5,611	258,999	3,321	59%
Independent Town and Central City*	450,671	1,720	302,747	1,156	67%
Rural**	148,137	218	116,706	172	79%
STATE	1,266,621	1,230	819,534	796	65%

*This Community Type contains school districts within Other Central City, Other Central Suburban, and Independent Town categories.

**This Community Type contains school districts within Non-Metro Fast Growing, Non-Metro Stable and Rural categories.

SOURCES: Legislative Budget Board; Texas Education Agency.

FIGURE 2
CTE COURSES BY CAREER CLUSTER
SCHOOL YEAR 2010–11

CAREER CLUSTER	TOTAL NUMBER OF STATE FUNDING ELIGIBLE COURSES WITHIN CLUSTER
Science, Technology, Engineering and Mathematics	30
Agriculture, Food and Natural Resources	26
Arts, A/V Technology and Communication	25
Architecture and Construction	24
Human Services	20
Information Technology	17
Transportation, Distribution and Logistics	14
Law, Public Safety, Corrections and Security	13
Business Management and Administration	12
Health Science	12
Hospitality and Tourism	11
Government and Public Administration	10
Manufacturing	10
Finance	8
Marketing	8
Education and Training	5
Innovative Courses	24

SOURCE: Texas Education Agency.

LABOR MARKET RELEVANCY

CTE programs provide students with opportunities to acquire knowledge and skills that will prepare them for specific career paths relating to current and emerging occupations. This critical purpose has long standing priority within national and statewide CTE policy. In 1987, the State Board of Education created the Master Plan for Vocational Education. One of that plan's goals was the development of an educational and training delivery system that would be more responsive to the needs of employers and trends in local labor markets.

A specific focus on regional labor markets originated in the Quality Workforce Planning system that was developed in the early 1990s. This initiative was designed to support regional implementation of statewide CTE efforts outlined in the 1987 Master Plan. One of its objectives was to develop a service delivery plan based on regionally targeted occupations and related programs, services, and activities.

School district involvement within this system would be to offer courses related to targeted occupations.

State services and resources are available to assist school districts in making informed choices about which CTE courses to offer. The Texas Workforce Commission's Labor Market Career Information division provides school districts access to extensive regional and statewide labor market data for both current and future labor market needs. Additionally, school districts can obtain regional labor market data through their local Tech Prep Consortia which typically has a representative from the Local Workforce Development Board (LWDB) serving on their governing board or they can contact their own LWDB directly.

LABOR MARKET ALIGNMENT

School districts' CTE courses delivered in school year 2009–10 were compared to regional labor market needs to determine the extent of regional labor market alignment among the CTE courses delivered. Targeted occupation lists developed by the LWDB were used by Legislative Budget Board staff to approximate regional labor market need. These lists are required by the Texas Workforce Commission for a LWDB to justify offering federally funded training for those occupations. These lists contain from 20 to 30 occupations each.

There are 28 Local Workforce Development Boards in Texas providing services to 28 corresponding Workforce Development Areas (WDA). Workforce boards conduct extensive labor market analysis to identify high wage occupations in high demand within their region that require a range of skill from on-the-job training to a bachelor's degree. These occupations are drawn from industries identified as critical to the workforce region. Identifying these occupations is necessary for LWDBs to maximize workforce development resources allocated to that board. The occupations listed are expected to have the highest growth in job and wage opportunities.

Figure 3 shows the alignment of CTE courses taken by all students and just CTE concentrators to regional labor market need (area of need). Statewide, approximately 73 percent of students enrolled in CTE courses in school year 2009–10 were in courses for career clusters identified on a corresponding workforce board's targeted occupation list. There was a marginal increase in the percentage of CTE concentrator enrollment in an area of need the further a school district was from a major metropolitan area.

**FIGURE 3
CTE COURSE ENROLLMENT
TOTAL SECONDARY STUDENTS VS. SECONDARY CTE CONCENTRATORS
SCHOOL YEAR 2009–10**

COMMUNITY TYPE	SECONDARY STUDENTS		SECONDARY CTE CONCENTRATORS		CTE CONCENTRATOR ENROLLMENT AS PERCENTAGE OF TOTAL ENROLLMENT
	TOTAL ENROLLMENT*	PERCENTAGE OF ENROLLMENT IN AREA OF NEED	TOTAL CTE CONCENTRATOR ENROLLMENT*	PERCENTAGE OF CTE CONCENTRATOR ENROLLMENT IN AREA OF NEED	
Major Urban	233,420	71%	91,778	71%	39%
Major Suburban	446,893	71%	199,872	72%	45%
Independent Town and Central City	549,710	74%	284,911	74%	52%
Rural	239,746	75%	165,062	76%	69%
STATE TOTAL	1,469,769	73%	741,623	73%	50%

*Includes students enrolled in two or more CTE courses simultaneously.
SOURCES: Legislative Budget Board; Texas Education Agency.

The most significant difference between school district community types was the share of non-CTE concentrators taking CTE courses. In major urban school districts CTE concentrators made up approximately 39 percent of enrolled students whereas in rural school districts these same students represented 69 percent of enrolled students.

Figure 4 shows the breakdown of course-to-targeted occupation list alignment (area of need) by career cluster. Hospitality and tourism had the least alignment with 6 percent of students enrolled in regions where hospitality and tourism occupations were targeted by the LWDB. The largest misalignment occurred among students taking Human Services courses with 211,506 student courses not aligned to a career cluster appearing on the corresponding workforce board targeted occupation list. Within this cluster, the largest share of courses taken were for food science and technology and personal and family development. Conversely, agriculture, food and natural resources, architecture and construction, business management and administration, health science, and transportation, distribution and logistics all had 100 percent relevancy to regional labor market need due to nearly all of the LWDBs identifying occupations within those career clusters.

CTE PROGRAM CAPACITY

School district CTE programs offer a range of courses related to a variety of careers and occupations. A school district’s capacity to offer courses in multiple career clusters provides its students with numerous opportunities for technical education and relevant career preparation across a wide range of occupations. This increases the likelihood that a school

district is offering CTE courses for which a student may have a particular interest.

A variety of factors can influence a school district’s capacity to offer multiple career clusters beyond the statutorily required minimum, which include:

- sufficient personnel qualified to teach these courses;
- availability of technology and properly equipped facilities;
- extent of CTE courses that can substitute for academic courses; and
- coherent sequences of CTE courses that create additional personnel requirements for a school district to offer each cluster.

FIGURE 4
CTE COURSE ALIGNMENT BY CAREER CLUSTER*
ALL STUDENTS
SCHOOL YEAR 2009–10

CAREER CLUSTER	NUMBER OF WDAS TARGETING	SUM OF ENROLLMENT	ENROLLMENT IN AREA OF NEED	ENROLLMENT NOT IN AREA OF NEED	PERCENTAGE OF ENROLLMENT IN AREA OF NEED
Agriculture, Food and Natural Resources	28	211,838	211,838	0	100%
Architecture and Construction	27	54,730	54,730	0	100%
Business Management and Administration	28	61,533	61,533	0	100%
Health Science	28	111,515	111,515	0	100%
Transportation, Distribution and Logistics	28	26,813	26,813	0	100%
Manufacturing	27	39,585	39,273	312	99%
Arts, A/V Technology and Communication	9	47,133	46,728	405	99%
Science, Technology, Engineering and Mathematics	24	47,515	45,880	1,635	97%
Information Technology	24	403,996	381,170	22,826	94%
Education and Training	22	76,230	54,178	22,052	71%
Marketing	12	53,647	37,069	16,578	69%
Law, Public Safety, Corrections and Security	20	46,386	31,942	14,444	69%
Finance	7	33,917	6,094	27,823	18%
Human Services	7	245,637	34,131	211,506	14%
Hospitality and Tourism	4	16,080	959	15,121	6%
STATE TOTAL		1,476,555	1,143,853	332,702	77%

*The Government and Public Administration Cluster is not listed because no students were recorded as enrolled in a course within this cluster for the 2009–10 school year.

SOURCES: Legislative Budget Board; Texas Education Agency.

Figure 5 shows the average number of career clusters that school districts delivered by community type and the percentage of CTE student enrollment across the highest enrolled clusters. Rural school districts delivered significantly fewer career cluster options when compared to school districts in metropolitan areas, with an average of 6.8 clusters delivered with 73 percent of all CTE courses delivered falling within those three career clusters. Rural school districts also have the highest number of students identified as CTE Concentrators as a percentage of total secondary enrollment.

The information technology career cluster had the largest share of student enrollment among CTE courses delivered within each community type, except rural, in school year 2009–10. These courses made up from 27 percent to 32 percent of the CTE courses delivered. Human services and agriculture, food and natural resources followed close behind

with statewide enrollment percentages of 17 percent and 14 percent respectively. A significant difference in course enrollment existed between rural school districts and the rest of the state with the agriculture, food and natural resources cluster making up over one-third of the CTE courses delivered to students.

**FIGURE 5
CAREER CLUSTER OFFERINGS BY COMMUNITY TYPE
SCHOOL YEAR 2009–10**

COMMUNITY TYPE	AVERAGE NUMBER OF CAREER CLUSTERS DELIVERED	PERCENTAGE OF STUDENT ENROLLMENT WITHIN 3 CLUSTERS	TOP 3 CLUSTERS WITH LARGEST ENROLLMENTS	PERCENTAGE OF CTE COURSE ENROLLMENT BY TOP 3 CLUSTERS
Major Urban	15.2	56%	1. Information Technology 2. Human Services 3. Health Science	32% 15% 8%
Major Suburban	12.7	53%	1. Information Technology 2. Human Services 3. Agriculture, Food and Natural Resources	27% 17% 9%
Independent Town and Central City	10.9	59%	1. Information Technology 2. Human Services 3. Agriculture, Food and Natural Resources	27% 16% 15%
Rural	6.8	73%	1. Agriculture, Food and Natural Resources 2. Information Technology 3. Human Services	34% 22% 18%
STATE AVERAGE	8.5	58%	1. Information Technology 2. Human Services 3. Agriculture, Food and Natural Resources	27% 17% 14%

SOURCES: Legislative Budget Board; Texas Education Agency.