MEMORANDUM November 2, 2011

TO: Board Members

FROM: Terry B. Grier, Ed.D.
Superintendent of Schools

SUBJECT: **CAREER AND TECHNICAL EVALUATION REPORT**

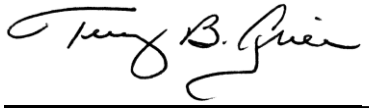
CONTACT: Carla Stevens, (713) 556-6700

Attached is the 2010–2011 evaluation report on the Career and Technical Education (CTE) program implemented in the district. This report assesses the program participation and academic performance of CTE participants from the past three years, 2008–2011, as compared to non-CTE students. This report also includes a summary of the course offerings and program components implemented in the CTE program. Approximately, 165 different CTE courses were offered at 67 schools (29 high schools and 38 middle schools) throughout the district in 2010–2011.

From 2008–2011, CTE students were found to outperform their non-CTE counterparts on TAKS tests. In addition, students enrolled in CTE programs were found to have higher 4-year graduation rates and lower annual dropout rates during the same time period than the district's overall rates. The higher performance by CTE students supports the belief that involvement in the CTE program can be academically-beneficial for students.

The CTE program aligns with HISD's strategic direction, which focuses on the core initiative: Rigorous Instructional Standards and Supports. Currently, the CTE program offers rigorous academic and technical curricula, career counseling, business partnerships, as well as out-of-classroom learning experiences for students. The CTE program must continue to commit to a variety of programming and opportunities for students to develop their career knowledge and skills.

Should you have any further questions, please contact my office or Carla Stevens in Research and Accountability at (713) 556-6700.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cc: Superintendent's Direct Reports
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RESEARCH

Educational Program Report

Career and Technical Education
2010–2011

Department of Research and Accountability
Houston Independent School District

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EXECUTIVE SUMMARY

CAREER AND TECHNICAL EDUCATION
2010–2011

Program Description

The Career and Technical Education program (CTE) in the Houston Independent School District (HISD) has a mission to equip students with the marketable academic and technical skills needed to compete in the global workforce and/or to continue their education at the post-secondary level after graduation. Consequently, the goals of the CTE program are: (1) to provide students with relevant and up-to-date instruction within their career pathway (s) of interest, (2) to offer an advanced curriculum that can lead to industry certifications, (3) to expose students to out-of-classroom and real-world work experiences, and (4) to implement professional development that focuses on best practices in career and technical education. By enrolling in CTE courses and participating in CTE program components, students are empowered to strengthen the economic and social foundation of the local community and beyond.

The CTE department collaborates with principals, instructional leaders, and industry professionals to design, implement, and assess core and career program offerings. To ensure continuous student achievement, basic and advanced academics as well as technical skills are integrated into the curriculum to enhance the attainment of competent proficiencies and standards. The CTE program in HISD offers a variety of career education courses that prepare students for entry into institutions of higher learning or the workforce. These courses are taught by certified, CTE instructors.

Sixth-grade through twelfth-grade students can enroll in elective courses that match their career interests. Students who select CTE courses as general electives are coded as CTE 1 participants. High school students can develop a career concentration and take multiple CTE courses that correspond with their interests. The development of a career pathway concentration that is planned from a strong coherent sequence of courses allows students the opportunity to identify career options that lead to transferable skills and knowledge. Students who select a coherent sequence of courses are coded as CTE 2 participants and those with an interest in technical fields can enroll in the Tech Prep program (coded as CTE 3 participants).

The Texas Education Agency (TEA) has identified the following career concentrations:

- Agriculture, Food and Natural Resources;
- Architecture and Construction;
- Audio/Visual Technology and Communications,
- Business, Management, and Administration;
- Education and Training;
- Finance;
- Government and Public Administration;
- Health Science;
- Hospitality and Tourism;
- Human Services;
- Information Technology;
- Public Safety, Corrections, and Security;
- Manufacturing;
- Marketing, Sales and Service;
- Science, Technology, Engineering, and Mathematics; and
- Transportation, Distribution, and Logistics.

In an effort to address the developing needs of the future workforce, the Texas Education Agency (TEA) and the Texas Higher Education Coordinating Board (THECB) have revised a plan of action, the Texas State Plan for Career and Technical Education, 2008–2013. The State Plan for Career and Technical Education, 2008–2013 (referred to as the CTE State Plan) outlines a renewed vision for career and technical education programs where there is clear understanding that academic education and technical education are not in conflict with one another; instead, academic concepts are reinforced and utilized in technical education applications (CTE State Plan, 2007). HISD's CTE program's philosophy clearly emphasizes that a rigorous academic foundation contributes to success in school and in life; that all students should be provided equal access to opportunities that will help them succeed; and that career and technology education should complement and enhance academic preparation by enabling students to apply learned principles to a variety of family, community, and career situations.

Purpose of Evaluation

The purpose of this evaluation report was to summarize the CTE program components and course offerings. In addition, demographic characteristics, test performance, graduation rates, and dropout rates were presented for students enrolled in CTE courses over the last three school years, (2008−2009 through 2010−2011).

Key Findings

1. What were the demographic characteristics of students enrolled in the CTE program over the past three years, 2008–2011?

- Over the past three years, HISD student enrollment in grades six through twelve has increased from 86,194 students in 2008–2009 to 87,826 in 2010−2011. The CTE program experienced a consistent reduction in enrollment over the three-year period, starting with 34,240 students in 2008–2009 to 31,898 students in 2010−2011.

- From 2008–2009 to 2010–2011, the number of students enrolled in CTE 1 courses, as elective-takers, decreased by 22.9 percent to 16,246 in 2010–2011. During the same time period, the numbers of CTE 2 students increased 15.4 percent to 13,709 in 2010−2011. The number of CTE students coded in the Tech Prep program increased 50.7 percent to 1,943 in 2010–2011.

2. What were the CTE program components and course offerings implemented in HISD in 2010−2011?

- CTE program components included course offerings, certifications/licenses, career and technical student organizations, college credit for CTE students, career preparation, internships, job shadowing, and Tech Prep.

- CTE administrators and staff created a quarterly newsletter entitled the "CTE Honor Roll". This publication spotlights the accomplishments of CTE students and summarizes CTE events.

- One hundred and sixty-five different CTE courses were offered at 67 schools (29 high schools and 38 middle schools) throughout the district. These courses cover career concentrations identified by the TEA. The most popular career concentrations in the district for 2010−2011 were (1) Business Management and Administration, (2) Information Technology, (3) Health Science, (4) Science, Technology, Engineering, and Mathematics, and (5) Transportation, Distribution, and Logistics.

3. What were the certifications/licenses earned by students enrolled in the CTE program in 2010–2011?

- A total of 15,184 certifications and/or licenses were earned in 39 different specialization areas. The largest number of certifications was earned in the area of Safety-Occupational Safety and Health Administration (OSHA), with 5,596 students earning this certification. This compares to 1,301 certifications earned in 2008–2009 and 3,942 certifications earned in 2009–2010.

4. What were the trends in Texas Assessment of Knowledge and Skills (TAKS) performance of students enrolled in the CTE program as compared to HISD students over the past three years, 2009–2011?

- From spring 2009 through spring 2011, CTE 2 and CTE 3 students outperformed non-CTE students in all subject areas on the TAKS.

- Specifically, in 2011, the percentage of CTE 2 students passing the math test was 12 percentage points higher than the passing rate of non-CTE students (82 percent vs. 70 percent), while the percentage of CTE 3 students who passed the TAKS math test was 11 percentage points higher than non-CTE students (81 percent vs. 70 percent).

- On the spring 2009, 2010, and 2011 TAKS, the passing rates of CTE students who were classified as economically disadvantaged and those enrolled in Tech Prep surpassed TEA acceptable performance levels in reading/ELA, math, science, and social studies.

5. What were the graduation and annual dropout rates for students enrolled in the CTE program as compared to HISD students over the past three years, 2007–2008 to 2009–2010?

- The total number of CTE graduates increased over the three-year period, from 3,390 graduates in the spring of 2008 to 3,615 graduates in the spring of 2010. The number of CTE 2 graduates decreased from 3,359 in the spring of 2008 to 3,178 in the spring of 2010. However, the number of Tech Prep (CTE 3) graduates increased substantially from 31 graduates in spring 2008 to 437 in the spring of 2010. During the same time period, the number of HISD graduates increased substantially from 7,976 to 9,118.

- The percentages of CTE students from the ninth-grade cohort graduating from high school in a four-year period increased steadily from 2008 to 2010, starting at 84.7 percent in 2008, increasing to 90.9 percent in 2010. Similarly, the percentage of HISD students from the ninth-grade cohort graduating from high school in a four-year period increased over the three-year period from 68.2 percent in 2009 to 74.3 percent in 2010.

- From 2007–2008 to 2008–2009, the annual dropout rates of CTE students and HISD declined. In 2007–2008, the annual dropout rate of the CTE students (codes 2 and 3) was 2.0 percent and decreased to 1.5 percent in 2008–2009. The annual dropout rates for HISD students was 4.8 percent in 2007–2008 and declined to 3.3 percent in 2008–2009. However from 2008–2009 to 2009–2010, the annual dropout rates slightly increased for both groups, with the dropout rate of CTE students increasing from 1.5 percent to 1.6 percent, and HISD's dropout rates increasing from 3.3 percent to 3.7 percent. For the three school years analyzed, the annual dropout rates for CTE students remained lower than the annual dropout rates for HISD students.

Recommendations

1. Continue to provide program offerings and components across the career concentrations so that CTE program students can select interests from a variety of career pathways and participate in multiple career development experiences. The amount of diverse programming available for students encourages career exploration and helps students to develop an awareness of their future career options.

2. Based on the 2011 PBMAS data, the passing rates of CTE limited English proficient (LEP) students and those receiving special education services fell below the acceptable performance levels on the 2011 TAKS mathematics, reading/ELA, and science tests. CTE program administrators should work to develop curriculum activities that help to improve the performance of CTE students in these special populations.

3. The percentages of CTE students from the ninth-grade cohort graduating from high school in a four-year period remained higher than the 4-year graduation rates of districtwide students. Similarly, annual dropout rates of CTE students were lower than those of HISD students. Considering the higher graduation rates and lower annual dropout rates of CTE students, efforts should be made to increase the enrollment of ninth and tenth-grade students in a coherent sequence (CTE 2) of courses and in the Tech Prep program (CTE 3). Early enrollment in the CTE program may help students develop a stronger connection to school and career-oriented activities such that graduation becomes a more realistic and attainable goal.

Career and Technical Education
2010– 2011

Program Description

The Career and Technical Education program (CTE) in the Houston Independent School District (HISD) has a mission to equip students with the marketable academic and technical skills needed to compete in the global workforce and/or to continue their education at the post-secondary level after graduation. Consequently, the goals of the CTE program are: (1) to provide students with relevant and up-to-date instruction within their career pathway (s) of interest, (2) to offer an advanced curriculum that can lead to industry certifications, (3) to expose students to out-of-classroom and real-world work experiences, and (4) to implement professional development that focuses on best practices in career and technical education. By participating in CTE, students are empowered to strengthen the economic and social foundation of the local community and beyond.

The CTE department collaborates with principals, instructional leaders, and industry professionals to design, implement, and assess core and career program offerings. To ensure continuous student achievement, basic and advanced academics as well as technical skills are integrated into the curriculum to enhance the attainment of competent proficiencies and standards. The CTE program provides students with real work opportunities exposing them to the demands of the workforce. These opportunities are made available by collaborations between HISD, local businesses, and professional organizations.

The CTE program in HISD offers a variety of career education courses that prepare students for entry into institutions of higher learning or the workforce. These courses are taught by certified CTE instructors. Sixth-grade through twelfth-grade students can enroll in elective courses that match their career interests. Students who select CTE courses as general electives are coded as CTE 1 participants.

High school students can develop a career concentration and take multiple CTE courses that correspond with their interests. Students who select a coherent sequence of courses are coded as CTE 2 participants and those with an interest in technical fields can enroll in the Tech Prep program (coded as CTE 3 participants). The development of a career pathway concentration that is planned from a strong coherent sequence of courses allows students the opportunity to identify career options that lead to transferable skills and knowledge. The Texas Education Agency (TEA) has identified the following career concentrations:

- Agriculture, Food and Natural Resources;
- Architecture and Construction;
- Audio/Visual (A/V) Technology and Communications,
- Business, Management and Administration;
- Education and Training;
- Finance;
- Government and Public Administration;
- Health Science;
- Hospitality and Tourism;
- Human Services;
- Information Technology;
- Public Safety, Corrections, and Security;
- Manufacturing;
- Marketing, Sales, and Service;
- Science, Technology, Engineering, and Mathematics; and
- Transportation, Distribution and Logistics.

In an effort to address the developing needs of the future workforce, the Texas Education Agency (TEA) and the Texas Higher Education Coordinating Board (THECB) have revised a plan of action, the Texas State Plan for Career and Technical Education, 2008–2013.

> "The TEA envisions a comprehensive plan of action for CTE that acknowledges the fact that the state is facing a time of great demographic and economic change. The public education systems must take immediate action by addressing the following challenges:
>
> - Recognize the unique needs of a diverse student population;
> - Prepare students for college and career success;
> - Provide students with a quality education that prepares them to be competitive within a global economy; and
> - Recruit and retain qualified teachers." (CTE State Plan, 2007, p.2)

The State Plan for Career and Technical Education, 2008–2013 (referred to as the CTE State Plan) outlines a renewed vision for career and technical education programs where there is clear understanding that academic education and technical education are not in conflict with one another; instead, academic concepts are reinforced and utilized in technical education applications (CTE State Plan, 2007). HISD's CTE program's philosophy clearly emphasizes that a rigorous academic foundation contributes to success in school and in life; that all students should be provided equal access to opportunities that will help them succeed; and that career and technology education should complement and enhance academic preparation by enabling students to apply learned principles to a variety of family, community, and career situations.

The HISD CTE program has adopted the state plan to provide academic excellence as defined by the federal *No Child Left Behind* law. This includes the provision of quality career and guidance counseling; partnerships that benefit students and schools; rigorous academic and technical curricula supporting seamless career pathways; professional development for educators to enhance teaching and learning; ongoing data evaluation of student performance; and administrative leadership for program effectiveness and compliance.

Purpose of Evaluation

The purpose of this evaluation report was to summarize the CTE program components and course offerings. In addition, demographic characteristics, test performance, and graduation rates were presented for students enrolled in CTE courses over the last three school years, (2008–2009 through 2010–2011).

The following evaluation questions were addressed:

1. What were the demographic characteristics of students enrolled in the CTE program over the past three years, 2008–2011?
2. What were the CTE program components and course offerings implemented in HISD in 2010–2011?
3. What were the certifications/licenses earned by students enrolled in the CTE program in 2010–2011?
4. What were the trends in Texas Assessment of Knowledge and Skills (TAKS) performance of students enrolled in the CTE program as compared to HISD students over the past three years, 2009–2011?
5. What were the graduation and annual dropout rates for students enrolled in the CTE program as compared to HISD students over the past three years, 2007–2008 to 2009–2010?

Program Funding

The CTE program is funded through the Carl D. Perkins Vocational and Technical Education Act of 1998. Texas' Perkins funds enhance the state's efforts to ensure that students pursue a rigorous course of study by providing support for districts to implement programs such as Project Lead the Way, and the

Advanced Technical Credit statewide articulation program. Local education agencies, including HISD, who accept Perkins funds, must utilize those funds to conduct the following activities:

- Strengthen the academic and technical skills of CTE students by integrating academics with CTE programs through a coherent sequence of courses;
- Provide students with strong experience and understanding of all aspects of an industry;
- Develop, improve, or expand the use of technology in CTE, through training of personnel to use state-of-the art technology; providing CTE students with the academic and technical skills to enter into the high technology and telecommunications fields; or encouraging schools to work with high technology industries that offer voluntary internships and mentoring programs;
- Provide professional development programs to teachers, counselors, and administrators in state-of-the-art CTE programs and techniques;
- Initiate, improve, expand, and modernize quality career and technology programs;
- Provide services and activities that are of sufficient size, scope, and quality to be effective;
- Link secondary career and technical education and postsecondary career and technical education, including implementing tech prep programs; and
- Develop and implement evaluations of the vocational and technical education programs carried out with funds under this title, including an assessment of how the needs of special populations are being met (CTE State Plan, 2007).

Methods

Data Collection

Descriptive data, including student demographics and longitudinal enrollment figures in the CTE program, were obtained from the Public Education Information Management System (PEIMS). Within the program, students were assigned a CTE code that indicated their level of enrollment in CTE courses. Students who took one or more CTE course as electives were coded 1; students enrolled in CTE courses as part of a coherent sequential plan of study were assigned a code of 2; and students enrolled in CTE courses as part of a state approved Tech Prep plan of study received a code of 3. Enrollment numbers were collected based on total CTE participation as well as by code participation. Graduation and annual dropout rates were gathered from Texas Education Agency's district files. Certification data were obtained from CTE personnel, while the Career and Technical Education website (HISD, 2010) provided details about the program and curriculum.

Quantitative analysis was accomplished using results from the Texas Assessment of Knowledge and Skills (TAKS) database. TAKS results were used in this report since it is a criterion-referenced test, specifically developed to reflect good instructional practices and to measure student learning. TAKS is vertically aligned with the Texas Essential Knowledge and Skills (TEKS) curriculum. TAKS was administered for the first time in the spring 2003 as a means to monitor student performance. The English language version measures academic achievement in reading at grades 3–9; English language arts at 10 and 11; writing at grades 4 and 7; social studies at grades 8, 10, and 11; and science at grades 5, 8, 10 and 11. Students in the 11th grade are required to take and pass an exit-level TAKS in all four subjects in order to graduate. Student performance data was also gathered from the Performance-Based Monitoring Analysis System (PBMAS), which examines the TAKS performance of students from various populations within special programs, such as CTE.

Results

What were the demographic characteristics of students enrolled in the CTE program over the past three years, 2008–2011?

The HISD enrollment numbers and CTE student enrollment by program code are shown in **Table 1** (see page 8). These codes are based on students in grades six through twelve eligible to participate in the CTE program. Over the past three years, HISD student enrollment in grades six through twelve has increased from 86,194 students in 2008–2009 to 87,826 in 2010–2011. However, the total number of students taking CTE courses over the three-year period decreased by 6.8 percent, from 34,240 students in 2008–2009 to 31,898 students in 2010–2011. Specifically, the number of students enrolled in CTE 1 courses as elective-takers decreased from 21,071 in 2008–2009 to 16,246 in 2010–2011, which was a 22.9 percent decline. However, the numbers of CTE 2 students increased from 11,880 in 2008–2009 to 13,709 in 2010–2011. The number of CTE students coded in the Tech Prep program (code = 3) also increased from 1,289 students in 2008–2009 to 1,943 in 2010–2011. The enrollment remained relatively constant in 2009–2010, with 1,283 students in the Tech Prep program.

Table 2 (see page 9) presents the district and CTE enrollment of students by student group. According to Table 2, the percentage of economically-disadvantaged students within the district has slightly decreased from 2008–2009 to 2010–2011 (75.8 percent to 75.1 percent). The percentage of economically- disadvantaged students enrolled in CTE courses has also decreased during this three-year period (76.5 percent to 75.3 percent). From 2008–2011, the district's percentage of special education students decreased consistently from 11.6 percent to 10.6 percent; while the percentage of students enrolled in CTE courses who received special education services decreased at a higher rate, from 10.7 percent to 9.3 percent. The district enrollment of students identified as gifted and talented slightly increased from 2008–2009 to 2010–2011 (14.3 percent to 14.5 percent). This trend was also found for the percentage of students enrolled in CTE courses identified as gifted and talented, but with a higher rate of increase, from 11.0 percent in 2008–2009 to 12.7 percent in 2010–2011.

The demographic characteristics of CTE students reflect the district's 6-12th grade enrollment within ± 2.0 percentage points for most characteristics. However, African-American students are overrepresented by 2.7 percentage points. The CTE program serves a larger percentage of at-risk students by 4.4 percentage points, and underserves limited English proficient students by 6.3 percentage points.

What were the CTE program components and course offerings implemented in HISD in 2010–2011?

The HISD CTE program consists of several components and course offerings that give HISD students opportunities to explore career options and gain preparation for the world of work and post-secondary education. The CTE program components ensure that all CTE students develop career awareness within their selected course of study, as well as exposure to professional experiences in order to enhance their

Table 1. Student Enrollment and Student by CTE Codes, 2008–2009 through 2010–2011

	2008–2009	2009–2010	2010–2011
Total HISD Student Enrollment (6th-12th)	86,194	87,576	87,826
Number of CTE Students Coded 1	21,071	19,809	16,246
Number of CTE Students Coded 2	11,880	12,542	13,709
Number of CTE Students Coded 3	1,289	1,283	1,943
Total Number of CTE Students	34,240	33,634	31,898

Note: Data retrieved from TEA PEIMS, Oct. 2008 – Oct. 2010.

Table 2. District and CTE (Codes 1,2 and 3) Course Enrollment by Student Groups*, 2008–2009 Through 2010–2011

Subgroup	Academic Year					
	2008–2009		2009–2010		2010–2011	
	N	%	N	%	N	%
Total HISD Student Enrollment (6th-12th)	86,194	100.0	87,576	100.00	87,826	100.00
Gender						
Female	42,430	49.2	42,967	49.0	43,064	49.0
Male	43,764	50.8	44,609	51.0	44,762	51.0
Ethnicity						
American Indian	54	<1.0	89	<1.0	241	<1.0
Asian	3,098	3.6	3,170	3.6	2,861	3.3
African-American	25,895	30.0	25,776	29.4	25,005	28.5
Hispanic	49,436	57.4	50,802	58.0	51,569	58.7
White	7,711	8.9	7,739	8.9	7,413	8.4
Two or More†					558	<1.0
Economically Disadvantaged	65,369	75.8	63,689	72.7	65,973	75.1
At Risk	53,912	62.5	53,642	61.3	54,519	62.1
Special Education	10,025	11.6	9,667	11.0	9,282	10.6
Limited English Proficiency	12,693	14.7	12,749	14.6	12,665	14.4
Gifted & Talented (G/T)	12,290	14.3	12,684	14.5	12,757	14.5
Total CTE Student Enrollment	34,240	100.0	33,634	100.0	31,898	100.0
Gender						
Female	16,797	49.1	16,502	49.1	15,801	49.5
Male	17,443	50.9	17,132	50.9	16,097	50.5
Ethnicity						
American Indian	15	<1.0	33	<1.0	101	<1.0
Asian	1,030	3.0	1,000	3.0	864	2.7
African-American	11,490	33.5	10,969	32.6	9,945	31.2
Hispanic	19,302	56.4	19,262	57.3	18,414	57.7
White	2,403	7.0	2,370	7.0	2,299	7.2
Two or More†					174	<1.0
Economically Disadvantaged	26,201	76.5	24,737	73.5	24,027	75.3
At Risk	22,701	66.3	21,324	63.4	21,206	66.5
Special Education	3,665	10.7	3,383	10.1	2,971	9.3
Limited English Proficiency	3,494	10.2	3,139	9.3	2,591	8.1
Gifted & Talented (G/T)	3,753	11.0	4,044	12.0	4,036	12.7

Note: Data retrieved from TEA PEIMS, October 2008 – October 2010.
* District enrollment numbers reflect only students in grades 6 through 12, grades where students are eligible to enroll in CTE courses.
†Two or More Ethnicity Classification added to PEIMS in October 2010.

mastery, confidence, and leadership skills.

In addition to the program components, the CTE department offers a variety of programs from which students can select a career pathway of study. Career pathways provide a plan for all students, regardless of their abilities, talents, or desired levels of education. Career concentration pathways provide all

students with areas of focus, along with flexibility, and a variety of ideas to pursue as they make decisions regarding course selection. By taking CTE courses, students are given opportunities to participate in hands-on training within their career pathway of interest. The CTE program components include the following (listed alphabetically):

Career and Technology Student Organizations (CTSO)

CTE students are encouraged to join student organizations that are directly related to their selected career pathway. These organizations offer students opportunities to develop leadership and teamwork skills that help prepare them for the work force and/or for college training. HISD has developed several partnerships with local, regional, and national professional organizations so that the school-level student organizations can fully participate in activities and benefit from their professional memberships. Some of these organizations include 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), SkillsUSA, and the Technology Student Association (TSA).

Career Preparation, Internships, and Job Shadowing

Within CTE, students gain valuable insight and hands-on career experiences through internships and job shadowing. Students are placed in work-based settings in order to acquire knowledge and skills within real work environments. HISD has developed partnerships with various organizations and companies that provide students with on-the-job training experiences. For example, CTE students served as interns at Texas Children's Hospital and Methodist Hospital throughout the school year. Several students attending the High School for Law Enforcement and Criminal Justice had job shadowing experiences at the Houston Emergency Center.

Certifications/Licenses

Students within the CTE program have the opportunity to earn industry certifications and/or licenses within their chosen career pathways. Industry certifications serve as evidence of technical skill attainment. Earning industry certifications give students a sense of accomplishment, a highly-valued professional credential, and help them become more employable and eligible for higher starting salaries. There are over 90 professional certificates or licenses that are approved by TEA in which CTE high school students can earn. These certifications/licenses are connected to multiple industry careers such as beauticians, automotive mechanics, and several business-related fields.

College Credit for CTE Students

There are three different kinds of courses that CTE students can take in order to earn college credit; dual credit courses, advanced technical credit courses, or Tech Prep courses. Students within these courses are taught and graded in the same manner as college students who would take the course. Credits from these courses count toward the Distinguished Achievement Program (DAP) graduation plan, when students earn a grade of "B" or better. All courses are open to eleventh and twelfth-grade students and are provided at no charge.

Dual credit courses are the only courses that allow students to earn both high school and college credit hours simultaneously. They are developed and taught by college-approved instructors. No prerequisite classes are required to enroll in these courses. Advanced technical credit (ATC) courses are developed at the state level, while Tech Prep credit courses are developed within HISD. Both types of courses are taught by local high-school teachers who received specialized training. College credit for ATC and Tech Prep courses are awarded once students enroll in a participating college or university. The ATC program provides an opportunity for students to receive credit at participating community colleges across Texas for taking certain enhanced technical courses during high school. ATC courses are only offered in technical or workforce areas. The teacher of the course must meet the ATC teacher

requirements, go through ATC training, and teach the high school course so that it meets the content of the equivalent college course.

Tech Prep

The Tech Prep program provides a way for students to start their technical careers in high school and complete their training in a local community college. The six-year program is a combination of four years of high school courses, outlined in the Recommended graduation plan, and two years in a technical training program at a participating community college. The program prepares students for high-demand technical careers. At the end of the program, Tech Prep students can earn an Associate of Applied Science degree.

Course Offerings

One hundred and sixty-five different CTE courses are offered at 67 HISD schools (29 high schools and 38 middle schools) throughout the district. These courses range from accounting to welding and are related to the career concentrations identified by TEA (listed on page 5). A partial listing of the CTE courses being offered in the district can be found in the **Appendix A**. For the 2010–2011 school year, the enrollment numbers of CTE 2 and CTE 3 students by secondary school and career concentration are provided in **Appendix B**. The CTE program provides a variety of courses for students to select elective classes and/or courses within career concentrations. The most popular career concentrations in the district for 2010–2011 were (1) Business Management and Administration, (2) Information Technology, (3) Health Science, (4) Science, Technology, Engineering, and Mathematics, and (5) Transportation, Distribution, and Logistics. A full description of all CTE classes and the school locations, where each class is available, can be found in the curriculum section at the Career and Technical Education website. These courses are taken as electives or as part of a selected career concentration. The CTE specialized career programs include the following listed alphabetically and described below.

Agricultural Science and Technology

The Agricultural Science and Technology (AST) program has developed as an integral part of the CTE department in HISD. The mission of the program is to prepare students for careers, build awareness, and develop leadership for the food, fiber, and natural resource systems. Diverse course offerings make it attractive to students with varying educational goals. The AST program operates at eight high schools. These locations are Austin, Bellaire, Chavez, Lamar, Madison, Sam Houston Math, Science, and Technology Center, Worthing, and Yates. In addition, Harper Alternative School provides horticulture courses for students with disabilities. The AST program owns six farms. The farms are located near participating schools and vary in size: Madison has 35 acres, Austin and Yates share 62 acres, Bellaire, Lamar, and Lee have a total of 40 acres, and Sam Houston has 9 acres. The co-curricular activities for the AST program include membership in the student organization, Future Farmers of America (FFA), and participation in the Houston Livestock Show.

Automotive Youth Educational Systems (AYES)

Within the AYES program, HISD students are taught entry-level skills in the field of automotive technology. Students take courses in a coherent sequence to increase their levels of expertise in automotive technology. The program is a collaborative initiative between HISD and automotive industry partners such as local automotive dealerships and independently-owned repair shops. These automotive partners provide job-shadowing opportunities and apprenticeships to HISD students to gain real-world, on-the-job experiences in the AYES program. The AYES program is available at Westbury High School and Waltrip HS. These schools have automotive labs that are certified by the National Automotive Technology Education Foundation (NATEF) and hold Automotive Service Excellence (ASE) certifications.

Business, Management, and Administration

The Business, Management, and Administration career concentration is divided into six pathways, including management, business financial management and accounting, human resources, business analysis, marketing, administration, and information support. Within these pathways, students learn about planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations. The courses help students develop the skills and knowledge to conduct business in the workplace and/or pursue education in business fields. Courses in business, management, and administration are offered at all HISD high schools.

Construction Careers

Students interested in careers in the construction industry have several school choices within HISD. The Construction, Art, Science and Technology (CAST) Academy is offered at Furr HS. This program is supported by the Association of General Contractors (AGC) to assist with the development of the construction workforce in the Greater Houston area. There are also Construction Academies located at Austin and Yates high schools. Construction trade education helps students develop manipulative skills, safety, judgment, technical knowledge, and related occupational information. Construction courses are designed to train students through contextual instruction in the layout, design, production and processing, assembling, testing, diagnosing and maintaining industrial, commercial and residential goods and services. Students are also provided opportunities to develop and apply leadership, social, civic and business-related skills through their involvement in the Vocational and Industrial Clubs of American (VICA), which is the student organization for young people enrolled in the Trade and Industrial programs. Basic Safety, Introduction to Construction Math, Introduction to Hand Tools, Introduction to Power Tools, Introduction to Blueprints, Basic Communications Skills, and Basic Employability Skills are among course offerings. The Houston Community College System partners with HISD to support students within the construction programs.

Culinary Arts Programs

Culinary arts programs are available at Barbara Jordan, Davis, Wheatley, and Westside high schools and Harper Alternative School. The programs are designed to prepare students for career opportunities in the food service and hospitality industries. Culinary arts students train in specific culinary areas of interest, work toward receiving post-secondary credit, and enter the Chef Apprenticeship program, affiliated with the American Culinary Federation (ACF).

At Jefferson Davis High School, a hotel and restaurant management magnet program is offered along with a culinary arts component. At Davis, students interested in the tourism and hospitality industry, learn a variety of business management and culinary arts skills. Twelfth-grade students can participate in an internship program at the University of Houston. At Westbury, culinary arts students take courses related to the entrepreneurship side of culinary arts as well as food preparation lessons. HISD partnered with the Texas Restaurant Association. As a result, Westside has a fully operational Outback Restaurant.

DeBakey's College Preparatory School

The DeBakey's College Preparatory School, a component of the Health Sciences Department of CTE, allows students to take four years of sequenced health science classes. All health science teachers at the DeBakey High School for Health Professions are CTE certified in order to teach the courses. The Health Science Curriculum consists of the following courses by grade level: Introduction to Health Science for ninth graders; Anatomy and Physiology for tenth graders; Health Science Rotations: Dental Science, Medical Laboratory, and Patient Care for eleventh graders; and Health Science III- Hospital Internships, Advanced Anatomy and Physiology, Rehabilitation Rotations and Business Computer Information Systems for twelfth graders. Junior and senior students intern at the Texas Medical Center to complete rotation components. At the end of four years, students are awarded a Health Science Certificate.

DeBakey's College Preparatory School allows students to receive a well-rounded CTE foundation in the health sciences curriculum along with core academic classes.

Energy Industry Programs

There are three energy academies in HISD. These academies offer courses in which CTE students can develop their interests in careers related to the energy industry. These academies are located at Milby High School (Milby Academy for Petroleum Exploration & Production Technology), Lamar High School (Lamar Global Energy Business Program), and Westside High School (Westside Engineering & Geosciences Academy). The energy academies are financially supported by the Independent Petroleum Association of America (IPAA) to assist with developing an energy workforce in Houston.

The High School for Law Enforcement & Criminal Justice (H.S. LE/CJ)

The H.S. LE/CJ**,** a separate and unique magnet school, began in the spring of 1981 as a recruitment source for minority police officers. Currently, the curriculum is designed to allow students to explore careers related to law enforcement and criminal justice. Entry requirements include an 80 average in academic subjects, passing scores on standardized tests, and good conduct grades.

At the High School for Law Enforcement & Criminal Justice, students take vocational classes at each grade level to expose them to the skills and experience necessary for law enforcement and legal-related criminal justice careers. The law-legal programs are involved in law activities with professional organizations outside of the school. By the twelfth grade, students can participate in a variety of work assignments related to their career choices. More than 95 percent of the students at H.S. LE/CJ graduate as Texas Scholars.

Jack Yates School of Communications

Since 1978, the Jack Yates School of Communications has established a standard for excellence in the field of media communications. Located, on the campus of Jack Yates High School, the innovative "school-within-a-school" focuses on three specialized areas: Media Technology, Photography, and Journalism. The school remains committed to providing students with the very best in instruction, resources, technology, and equipment. Jack Yates is the only HISD high school to house separate television and photography studios. The journalism department provides interns for the Houston Chronicle and the "Eye On Third Ward" initiative with the Museum of Fine Arts. The Yates School has also formed a strong alliance with Texas Southern University and the University of Houston to further teach youth through photography/media and to use the depth of information for positive change as producers and consumers.

Pre-Engineering Programs - Project Lead the Way (PLTW)

For students interested in engineering, biomechanics, aeronautics, and other applied math and science arenas, PLTW is a special series of courses developed for the middle school and high school years. These courses complement math and science college preparatory programs to establish a solid background in engineering and technology. This program is sponsored by the East End Chamber of Commerce, which represents several petroleum and Houston port-related industries.

The PLTW courses are available at six campuses: César Chávez, Ebbert Furr, Westbury, Phillis Wheatley, Sam Houston, and James Madison high schools. During the spring of 2010, the PLTW program at Wheatley High school received full national certification. By earning this certification, Wheatley students in the PLTW program can earn college credit for engineering courses while still enrolled in high school. (More information can be found at www.houstonisd.org, dated March 31, 2010.)

Reagan Computer Technology Magnet Program

The Reagan High School Program for Computer Technology offers students instruction through the Academy of Finance. The Academy of Finance is a four-year program that prepares students for the banking and finance industry, advanced preparation in a junior college program, or enrollment in a full

baccalaureate program. It is a comprehensive program of study designed to assist students in developing knowledge of the increasing role of technology in the world of finance. The Computer Electronics and Networking Technology program is a four-year program leading to proficiency as an A+ certified computer technician or a CISCO certified networking technician. Four years of math and science are presented as well as basic electronics, solid-state devices and circuits, microprocessor theory and interfacing, and computer maintenance and repair techniques. The Cisco Systems Networking Academy teaches the principles and practice of building and maintaining networks and prepares students for the certified CISCO Networking Associated exam. Computer Programming is an intensive four-year college preparatory program with emphasis on math through calculus, science through physics, and computer science. Programming techniques are taught in a number of different programming languages including C++, JAVA Script and Hypertext Markup Language (HTML). The students gain experiences on the latest microcomputer equipment with access to networks and the internet.

Westbury High School Health Science Program

The Health Science Career Cluster encompasses more than 200 career specialties and/or occupations. The Health Science program at Westbury High School focuses on careers in planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development. The students at Westbury perform their clinical rotation duties at the Memorial-Hermann Hospital and the People's Clinic.

What were the certifications/licenses earned by students enrolled in the CTE program in 2010–2011?

Table 3 (see page 15) presents the certifications/licenses earned by CTE 2 and CTE 3 students in the 2010–2011 school year. A total of 15,184 certifications and/or licenses were earned in 39 different specialization areas. The largest number of certifications was earned in the area of Safety-Occupational Safety and Health Administration (OSHA), with 5,596 students earning this certification. A total of 2,292 students earned the Microsoft Certified Applications Specialist- WORD certification and 1,762 students earned their Cardiopulmonary Resuscitation (CPR) certification for adults, children, and/or infants.

During the 2009–2010 school year, CTE students earned a total of 3,942 certifications and/or licenses were earned in 34 different specialization areas. Since 2008, CTE personnel have placed a stronger emphasis on student certifications. Monthly certification numbers were shared with principals to encourage them to increase the number of CTE students on their campuses who worked on certifications. Boosting awareness of certifications has resulted in huge increases in total certifications over the last three years, from 1,301 in 2008–2009 to 15,184 during the 2010–2011 school year.

What were the trends in Texas Assessment of Knowledge and Skills (TAKS) performance of students enrolled in the CTE program as compared to HISD students over the past three school years, 2009–2011?

Table 4 (see page 16) and **Figures 1** through **4** (see pp.17-18) display the 2009 through 2011 student performance on the English TAKS by subject test for the following student groups: CTE 2 (coherent sequence), CTE 3 (Tech Prep), and non-CTE students. Table 4 provides data for all groups. Figures 1-4 presents graphic displays by subject test. Non-CTE results are for students in grades 9 through 11.

Figure 1 (see page 17) shows that the percent of CTE 2 and CTE 3 students passing the math TAKS was higher than the percent passing of non-CTE students from 2009 to 2011. Over the three-year period, the percentage of CTE 2 students passing the math TAKS increased from 73 percent to 82 percent.

Table 3. Certifications/Licenses Earned by CTE 2 and CTE 3 Students, 2010–2011		
	2010–2011	
	N	**%**
A+ Certification	18	0.12
Adobe Certified Associate (ACA) - Visual Communication using Adobe Photoshop	51	0.34
ASE Auto Technician	5	0.03
Autodesk Certified Associate-AutoCAD	18	0.12
Automated External Defibrillator	159	1.05
Basic Telecommunication	12	0.08
CareerSafe Online Safety Awareness	20	0.13
Certified Customer Service Specialist	22	0.14
Certified Veterinary Assistant (CVA)	23	0.15
Cosmetology Assessment	8	0.05
Cosmetology Operators License	2	0.01
CPR - Lay Responder (America Red Cross) - Adult and Child	1,232	8.11
CPR - Lay Responder (America Red Cross) - CPR Infant	530	3.49
Emergency 911 Telecommunication	18	0.12
EverFi Certified	1,310	8.63
First Aid Certification (American Red Cross)	956	6.30
First Responder Certification	9	0.06
Internet and Computing Core Certification (IC3)	39	0.26
Microsoft Certified Applications Specialist (MCAS) - ACCESS	18	0.12
Microsoft Certified Applications Specialist (MCAS) - EXCEL	498	3.28
Microsoft Certified Applications Specialist (MCAS) - OUTLOOK	48	0.32
Microsoft Certified Applications Specialist (MCAS) - POWERPOINT	1,452	9.56
Microsoft Certified Applications Specialist (MCAS) - WORD	2,292	15.09
NATE Certification(s) for Automotive Technician	10	0.07
National Lodging Management	1	0.01
NCCER CORE Certification: Introductory Craft Skills	175	1.15
Network+ Certification	17	0.11
OSHA Ten Hour Safety Certification	5,596	36.85
Pet First Aid and CPR (America Red Cross)	145	0.95
Physical Therapists Assistant (PTA)	8	0.05
Plumbing Assessment	16	0.11
Safety and Pollution Prevention	142	0.94
ServSafe© Certification	129	0.85
Shampoo-Conditioning Specialty Certificate	27	0.18
TCIC/NCIC	12	0.08
Teen Community Emergency Response Team	143	0.94
Tradesman License	10	0.07
VESTA MapStar	12	0.08
Web Design and Development Certifications	1	0.01
Total Number of Certifications/Licenses Earned	**15,184**	**100.00**

Source: HISD Department of Career and Technical Education, 2011.

Table 4. CTE 2, CTE 3, and Non-CTE English TAKS Performance, Spring 2009–2011

	Academic Year					
	2009		2010		2011	
	# Tested	% Passing	# Tested	% Passing	# Tested	% Passing
Mathematics						
CTE 2	5,474	73	8,063	81	8,855	82
CTE 3	931	67	734	83	1,226	81
Non-CTE	21,628	61	23,588	68	21,946	70
Reading/ELA						
CTE 2	7,565	90	8,148	92	8,972	91
CTE 3	944	85	740	92	1,225	92
Non-CTE	22,165	83	23,937	87	22,249	85
Science						
CTE 2	5,336	75	5,874	83	6,109	84
CTE 3	805	66	646	85	855	86
Non-CTE	11,800	66	13,329	74	12.818	75
Social Studies						
CTE 2	5,324	94	5,843	96	6,109	97
CTE 3	801	91	643	97	855	96
Non-CTE	11,744	90	13,144	93	12,690	94

Note: Data retrieved from TEA TAKS, 2009– 2011.

During the same time, the percentage of CTE 3 students passing the TAKS math test fluctuated from 67 percent in 2009 to 83 percent in 2010, then to 81 percent in 2011.

Figure 2 (page 17) shows that the percentage of CTE 2 and CTE 3 students passing the TAKS reading/English language arts (ELA) test was higher than non-CTE students. For the spring of 2009, CTE 2 students had the highest percentage of students passing the TAKS reading test, with 90 percent meeting the passing standard. Eighty-five percent of CTE 3 students met the passing standard of the 2009 TAKS reading/ELA test, while 83 percent of non-CTE students met the reading passing standard during the spring of 2009. Although the percentages of non-CTE students passing the TAKS reading/ELA test increased when comparing the 2009 results to the 2011 results, the performance of non-CTE students remained lower than the performance of CTE 2 and CTE 3 students for all three years.

As seen in **Figure 3** (page 18), during the 2009 TAKS science test administration, CTE 2 students passed at a higher percentage (75 percent), than the percentages of CTE 3 and non-CTE students (66 percent). Regarding the 2010 and the 2011 TAKS science performance, the percent of students meeting the science test standard increased from the previous year for all student groups, with CTE 2 and CTE 3 students outperforming the non-CTE students.

Figure 4 (page 18) shows that a slightly larger percentage of CTE 2 students (94 percent) met the passing standard on the social studies test of the TAKS than the CTE 3 (91 percent) and non-CTE students (90 percent) in the spring of 2009. Higher percentages of CTE 2 and CTE 3 students passed the social studies TAKS tests compared to non-CTE students during the 2010 administration. For 2010, the passing percentages were 96 percent for CTE 2 students, 97 percent for CTE 3 students, and 93 percent for non-CTE students. From 2010 to 2011, the passing percentages increased by one percentage point for CTE 2 and non-CTE students on the TAKS social studies test, with CTE 2 students passing at a rate of 97 percent and non-CTE students passing at a rate of 94 percent in 2011. From 2010 to 2011, the passing rate for CTE 3 students decreased by one percentage point to 96 percent passing the 2011 TAKS social studies test.

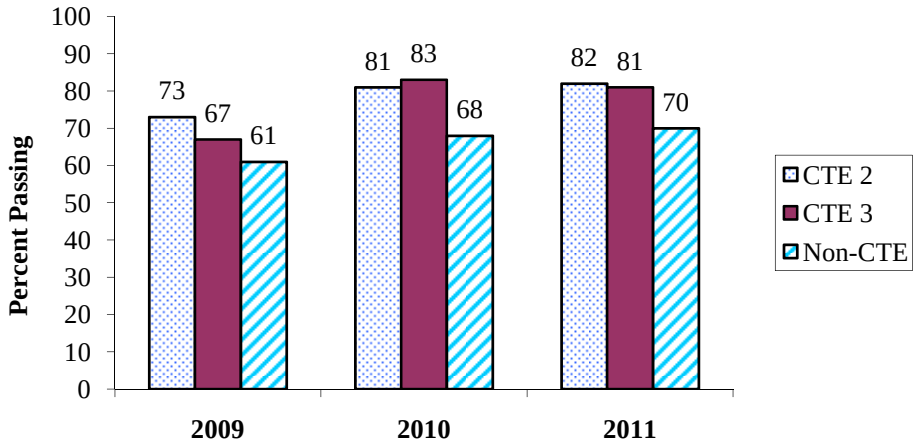

Figure 1. English TAKS math performance for CTE 2 and CTE 3 students compared to non-CTE students, 2010–2011.

Note: Data retrieved from TEA TAKS, 2009– 2011.

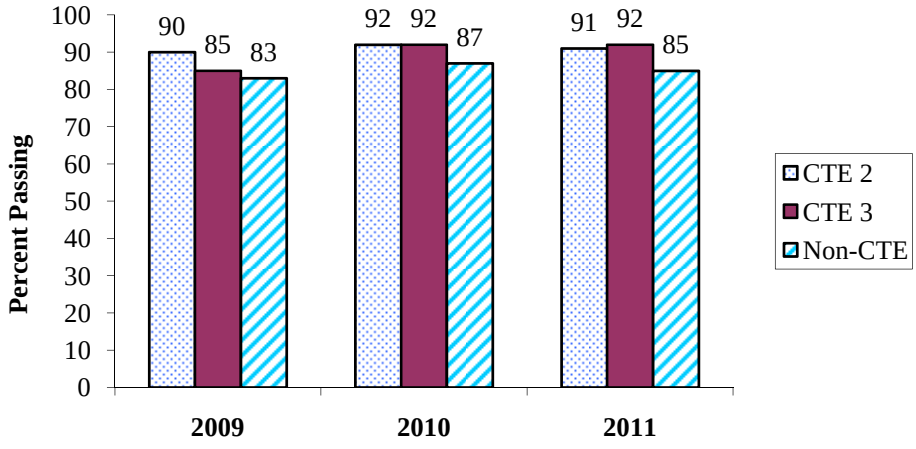

Figure 2. English TAKS reading/English Language Arts performance for CTE 2 and CTE 3 students compared to non-CTE students, 2009–2011.

Note: Data retrieved from TEA TAKS, 2009– 2011.

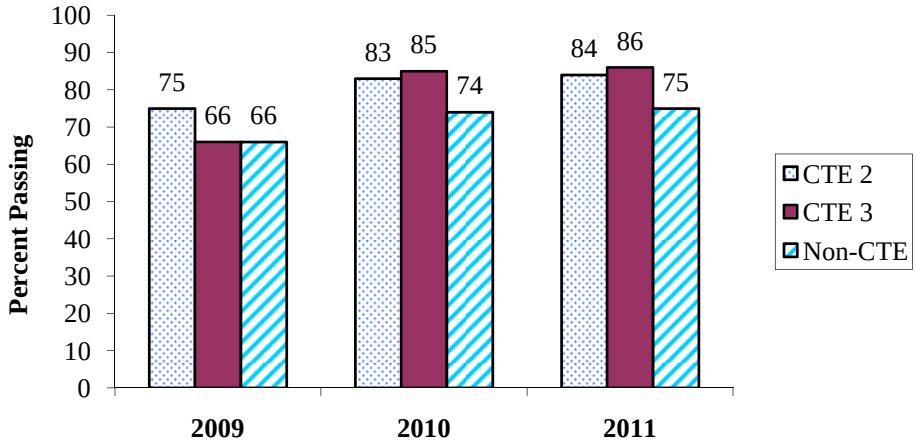

Figure 3. English TAKS science performance for CTE 2 and CTE 3 students compared to non-CTE students, 2009–2011.

Note: Data retrieved from TEA TAKS, 2009– 2011.

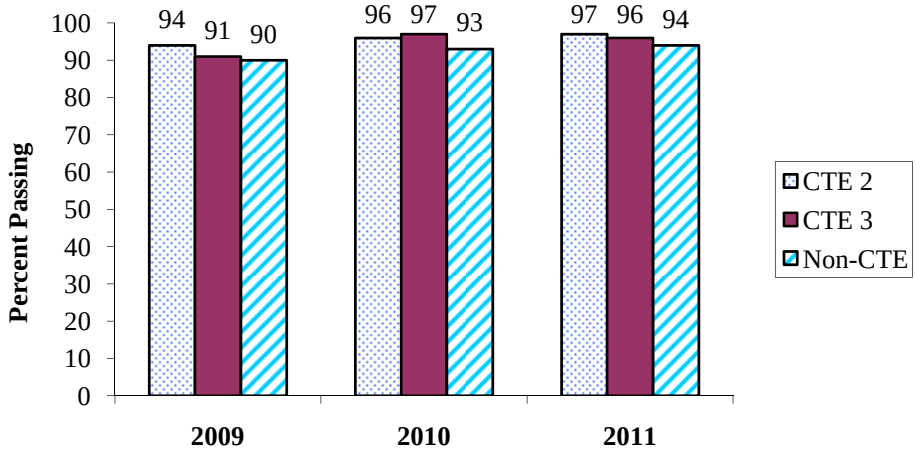

Figure 4. English TAKS social studies performance for CTE 2 and CTE 3 students compared to non-CTE students, 2009–2011.

Note: Data retrieved from TEA TAKS, 2009– 2011.

Performance-Based Monitoring Analysis System

The Texas Education Agency (TEA) has the Performance-Based Monitoring Analysis System (PBMAS) to examine the TAKS performance of students from various populations within special programs, including CTE. **Table 5** (see page 19) shows the PBMAS TAKS performance results and the

acceptable performance levels for 2009, 2010, and 2011. The PBMAS has a built-in improvement component such that school programs that have not met acceptable performance levels are given three years to make improvements. Each year, required improvement standards are calculated using the current year's performance rates and the previous year's performance rates. [Details about required improvement calculations can be found at in the PBMAS Manual (TEA, 2011).]

For the PBMAS, TEA recognized CTE students as those who were in ninth through eleventh grades and coded as CTE 2 (coherent sequence) or CTE 3 (Tech Prep). The TAKS passing rates of CTE 2 and CTE 3 students are combined by category (see Table 5). For spring 2009 to spring 2011, the TAKS passing rates of CTE students who were classified as economically disadvantaged and those enrolled in Tech Prep surpassed TEA acceptable performance levels on all subject tests.

Table 5. CTE TAKS Passing Rates by Economically-Disadvantaged, LEP, Special Education, and Tech Prep Program Participation, Spring 2009–Spring 2011

	Academic Year								
	2009			2010			2011		
	N Tested	% Passing	APL+	N Tested	% Passing	APL+	N Tested	% Passing	APL+
Economically-Disadvantaged									
Mathematics	5,163	70.5	55.0	5,931	79.2	60.0	7,380	78.8	65.0
Reading/ELA	5,218	89.3	70.0	6,071	90.4	70.0	7,450	89.0	70.0
Science	3,786	70.5	50.0	4,420	80.7	55.0	5,053	81.1	60.0
Social Studies	3,780	92.2	70.0	4,389	95.4	70.0	5,036	94.9	70.0
Limited English Proficiency									
Mathematics	351	36.5[2]	55.0	417	53.5*	60.0	565	50.4[2]	65.0
Reading/ELA	351	37.6[3]	70.0	411	45.7*	70.0	574	49.7[3]	70.0
Science	273	30.8[2]	50.0	318	45.9*	55.0	310	41.0[2]	60.0
Social Studies	272	62.1[1]	70.0	305	80.0	70.0	304	74.3	70.0
Special Education									
Mathematics	228	36.4*	55.0	412	37.1*	60.0	708	42.7[3]	65.0
Reading/ELA	243	63.4*	70.0	450	57.8*	70.0	720	57.6[2]	70.0
Science	246	33.3[2]	50.0	341	41.3*	55.0	488	41.4[2]	60.0
Social Studies	252	68.7*	70.0	340	79.1	70.0	483	68.9[1]	70.0
Tech Prep Program									
Mathematics	906	69.1	55.0	723	83.3	60.0	1,218	80.9	65.0
Reading/ELA	918	86.7	70.0	732	92.3	70.0	1,222	91.5	70.0
Science	803	66.4	50.0	641	85.6	55.0	841	86.2	60.0
Social Studies	799	91.4	70.0	639	97.2	70.0	840	96.0	70.0

Source: Performance-Based Monitoring Analysis System, Texas Education Agency, 2009–2011.

Note: Data is reported for students coded CTE 2 or CTE 3 only.

+: Acceptable Performance Level (APL) mandated by Texas Education Agency
*: Met PBMAS required improvement standard.
1: Passing rate is 0.1 to 10.0 percentage points below the subject-area standard.
2: Passing rate is 10.1 to 20.0 percentage points below the subject-area standard.
3: Passing rate is at least 20.1 percentage points below the subject-area standard.

The performances of students classified as limited English proficient (LEP) have fluctuated from 2009 to 2011. In the spring of 2009, CTE LEP students did not reach the acceptable performance levels for any of the TAKS subject tests. However, they did make the required improvements in 2010 in math, reading and science passing rates. CTE LEP students surpassed the 2010 performance level of 70 percent for social studies, as indicated by 80 percent of CTE LEP students passing the 2010 TAKS social studies test. In the spring of 2011, the passing rates of CTE LEP students fell below the PBMAS acceptable performance levels and did not meet required improvement on the 2011 TAKS mathematics, reading/ELA, and science tests. As in 2010, the passing rate of CTE LEP students (74.3 percent) on the 2011 TAKS social studies test passed the acceptable performance level of 70 percent.

In 2009, CTE students receiving special education services met the required improvements and were rated acceptable on the TAKS mathematics, reading/ELA, and social studies tests. However, these students did not meet the 2009 acceptable performance level for science. For 2010, CTE students receiving special education services met the required improvements on the TAKS mathematics, reading/ELA, and science tests and surpassed the performance level on the social studies test. However, CTE special education students did not reach the acceptable performance levels or make required improvements on any of the 2011 TAKS subject tests.

What were the graduation and annual dropout rates for students enrolled in the CTE program as compared to HISD students over the past three years, 2007–2008 to 2009–2010?

Graduation Rates

The graduation counts for twelfth-grade students coded as CTE 2 (coherent sequence) and CTE 3 (Tech Prep) from the 2007–2008 to the 2009–2010 school years are presented in **Figure 5**. Students who took CTE courses as general electives and coded as CTE 1 are not included. It is reflected in Figure 5 that

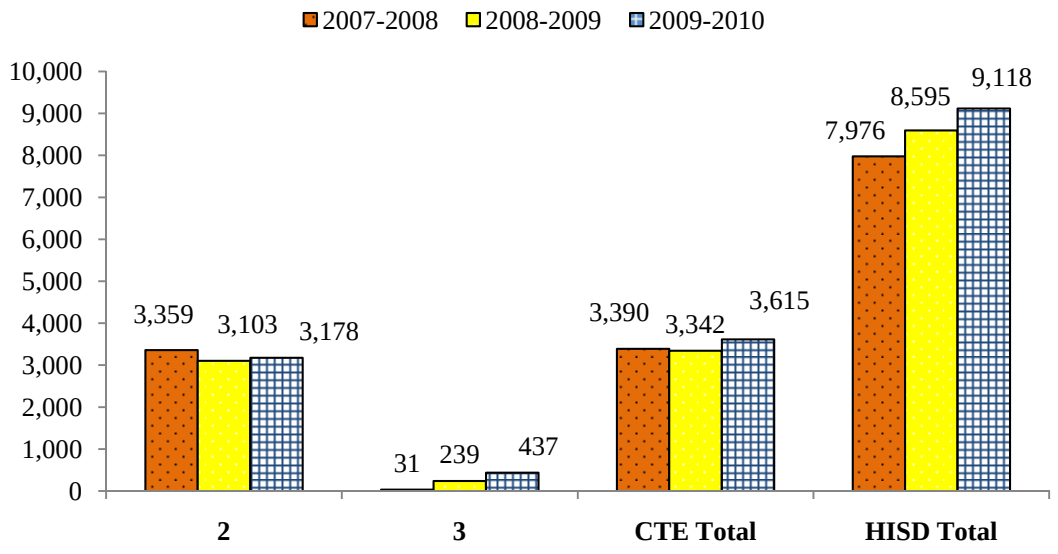

Figure 5. Number of graduates by CTE code, CTE total, and HISD totals, 2007–2008 through 2009–2010.

the total number of CTE graduates increased over the three-year period, from 3,390 graduates in the spring of 2008 to 3,615 graduates in the spring of 2010. The number of CTE 2 graduates decreased from 3,359 in the spring of 2008 to 3,178 in the spring of 2010. The number of CTE 3 graduates increased substantially from 31 graduates in spring 2008 to 437 in the spring of 2010. During the same time period, the number of HISD graduates increased substantially from 7,976 to 9,118.

In **Table 6**, the percent of CTE graduates are displayed by CTE codes and diploma types. Twelfth-grade students earn one of three diploma distinctions based on the level and quantity of credits acquired during high school. These three diploma types are Regular/Minimum, Recommended, and Distinguished Achievement. Students receiving special education services who complete their Individualized Education Plan at the end of their four years in high school also receive a diploma. From spring 2008 to spring 2010, the largest percentages of CTE graduates each year earn the Recommended diploma distinction, with an average of 85.1 percent. As displayed in Table 6, the number of CTE 2 students with the highest diploma type, Distinguished Achievement, rose from 195 (5.8 percent) in spring 2008 to 212 (6.7 percent) in spring 2010.

Longitudinal Graduation Rates

The longitudinal graduation rate represents the percentage of students from a class of first-time ninth graders who complete their high school education by their anticipated graduation date (Texas Education Agency, 2011). **Figure 6** (see page 22) displays the four-year longitudinal graduation rates for CTE (codes 2 and 3 combined) and HISD students for the 2008, 2009, and 2010 graduating classes. The percentages of CTE students from the ninth-grade cohort graduating from high school in a four-year period increased steadily from 2008 to 2010, starting at 84.7 percent for the class of 2008 to 87.2 percent for the class of 2009, up to 90.9 percent for the class of 2010. Similarly, the percentage of HISD students from the ninth-grade cohort graduating from high school in a four-year period increased over the three-year period from 68.2 percent for the class of 2008 to 74.3 percent for the class of 2010. For each year displayed, the percentage of CTE students graduating from high school in the four-year period was higher than that of the district.

Table 6. Percent of CTE Graduates by Diploma Type, 2008–2010

CTE Code	Type of Diploma	2008		2009		2010	
		N	%	N	%	N	%
2	Completion of Individualized Education Plan	119	3.5	95	3.1	116	3.7
	Regular/Minimum	262	7.8	230	7.4	200	6.3
	Recommended	2,783	82.9	2,649	85.4	2,650	83.4
	Distinguished Achievement	195	5.8	129	4.2	212	6.7
	Total	3,359	100.0	3,103	100.0	3,178	100.0
3	Completion of Individualized Education Plan	0	0.0	9	3.8	3	0.7
	Regular/Minimum	1	3.2	24	10.0	24	5.5
	Recommended	26	83.8	204	85.4	393	89.9
	Distinguished Achievement	4	13.0	2	0.8	17	3.9
	Total	31	100.0	239	100.0	437	100.0

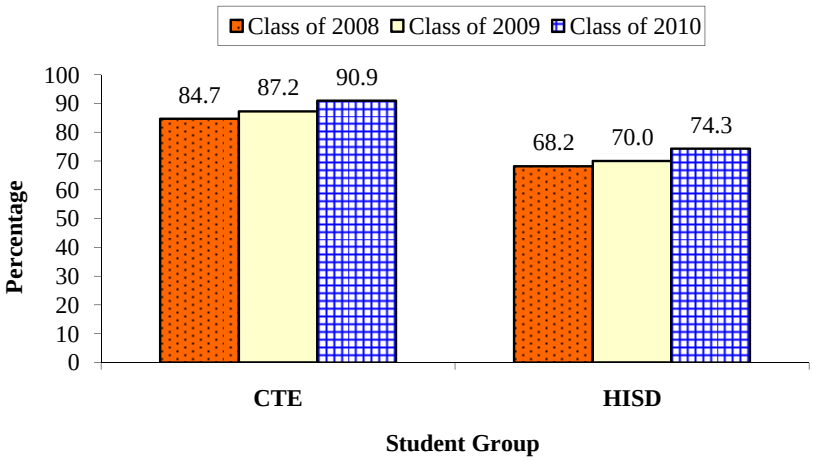

Figure 6. CTE+ (codes 2 and 3 combined) and HISD* four-year longitudinal graduation rates based on ninth grade cohorts, 2008–2010.

+Source: Performance-Based Monitoring Analysis System, Texas Education Agency, 2009–2011.
*Source: Secondary School Completion and Dropouts in Texas Public Schools Reports, 2009–2011.

Annual Dropout Rates

Table 7 presents the annual dropout rates (grades 9 through 12) for CTE (codes 2 and 3 combined) and HISD students for the 2007–2008, 2008–2009, and the 2009–2010 school years. The annual dropout rate (reported in percentages) is the number of students that dropped out of school in grades 9 through 12 in a particular school year divided by the number of students enrolled in that particular school year. From 2007–2008 to 2008–2009, the annual dropout rates of CTE students and HISD declined. In 2007–2008, the annual dropout rate of the CTE students (codes 2 and 3) was 2.0 percent and decreased to 1.5 percent in 2008–2009. The annual dropout rates for HISD students was 4.8 percent in 2007–2008 and declined to 3.3 percent in 2008–2009. However from 2008–2009 to 2009–2010, the annual dropout rates slightly increased for both groups, with CTE's dropout rates going from 1.5 percent to 1.6 percent and HISD's dropout rates going from 3.3 percent to 3.7 percent. For the three school years analyzed, the annual dropout rates for CTE students remained lower than the annual dropout rates for HISD students.

Table 7. CTE (codes 2 and 3 combined) and HISD Annual Dropout Rates, Grades 9 through 12, 2008–2010

	Academic Year								
	2007–2008			2008–2009			2009–2010		
	Total # of Dropouts	Total # of Students	Dropout Rate (%)	Total # of Dropouts	Total # of Students	Dropout Rate (%)	Total # of Dropouts	Total # of Students	Dropout Rate (%)
CTE+	274	13,724	2.0	200	13,522	1.5	232	14,244	1.6
HISD*	2,478	51,945	4.8	1,702	51,614	3.3	1,942	52,711	3.7

+Source: Performance-Based Monitoring Analysis System, Texas Education Agency, 2009–2011.
*Source: Secondary School Completion and Dropouts in Texas Public Schools Reports, 2009–2011.

Discussion

The HISD CTE Program offers career concentration courses and career pathways in which students are equipped with the academic and technical skills necessary to enter the workforce and/or continue their education at the post-secondary level after graduation. Exposure to a variety of CTE programs and courses allows students to explore their career options and gain mastery of career subject matter. Within their selected career concentrations, many CTE students are able to earn certifications and/or licenses as evidence of their mastery. Participation in CTE student organizations fosters the development of leadership and other needed skills to succeed in post-secondary training and in the workforce.

In general, CTE students were found to outperform their non-CTE counterparts on TAKS tests. In addition, students enrolled in CTE programs were found to have higher 4-year graduation rates and lower annual dropout rates during the same time period than the district's overall rates. The higher performance by CTE students supports the belief that involvement in the CTE program can be academically-beneficial for students.

The CTE program aligns with HISD's strategic direction, which focuses on the core initiative: Rigorous Instructional Standards and Supports. Currently, the CTE program offers rigorous academic and technical curricula, career counseling, business partnerships, as well as out-of-classroom learning experiences for students. The CTE program must continue to commit to a variety of programming and opportunities for students to develop their career knowledge and skills.

Recommendations

1. Continue to provide program offerings and components across the career concentrations so that CTE program students can select interests from a variety of career pathways and participate in multiple career development experiences. The amount of diverse programming available for students encourages career exploration and helps students to develop an awareness of their future career options.

2. Based on the 2011 PBMAS data, the passing rates of CTE limited English proficient (LEP) students and those receiving special education services fell below the acceptable performance levels on the 2011 TAKS mathematics, reading/ELA, and science tests. CTE program administrators should work to develop curriculum activities that help to improve the performance of CTE students in these special populations.

3. The percentages of CTE students from the ninth-grade cohort graduating from high school in a four-year period remained higher than the 4-year graduation rates of districtwide students. Similarly, annual dropout rates of CTE students were lower than those of HISD students. Considering the higher graduation rates and lower annual dropout rates of CTE students, efforts should be made to increase the enrollment of ninth and tenth-grade students in a coherent sequence (CTE 2) of courses and in the Tech Prep program (CTE 3). Early enrollment in the CTE program may help students develop a stronger connection to school and career-oriented activities such that graduation becomes a more realistic and attainable goal.

References

Houston Independent School District. (2010). Career and Technical Education Program. Retrieved from http://www.houstonisd.org/portal/site/CareerTech.

Texas State Plan for Career and Technical Education, 2008–2013. (2007). Retrieved August 4, 2008 from ritter.tea.state.tx.us/cte/Accountability/StatePlanFinal111607.pdf.

Texas Education Agency. (2011). Performance-Based Monitoring Analysis System. 2011 Manual. Retrieved September 19, 2011 http://ritter.tea.state.tx.us/pbm/2011PBMASManualFinal.pdf.

Texas Education Agency. (2011). Secondary school completion and dropouts in Texas public schools, 2010–2011: District supplement. Austin, TX.

Wheatley Earns National Certification in "Project Lead the Way" Program. (March 31, 2010). Retrieved May 17, 2010 from archived news at http://houstonisd.org.

APPENDIX A
Career Concentrations and Related Courses*, 2010–2011

Career Concentration	Sample of Related Courses
Agriculture, Food & Natural Resources	Animal Science Applied Agricultural Science And Technology Floral Design And Interior Landscape Development
Architecture & Construction	Introduction to Construction Careers Piping Trades/Plumbing I Mill and Cabinetmaking I
Audio/Visual Technology and Communications	Advertising Design I Media Technology I Textile and Apparel Design
Business, Management and Administration	Administrative Procedures I Business Communications; Business Law
Education and Training	Child Development Child Care and Guidance, Management, and Services I
Finance	Accounting I Banking and Financial Systems
Health Science	Health Science Technology Medical Terminology; Pharmacology
Hospitality and Tourism	Culinary Arts I Hospitality Services I Hotel Management
Human Services	Consumer and Family Economics Introduction to Cosmetology Personal and Family Development
Information Technology	Business Computer Information Systems I Introduction to Computer Maintenance Keyboarding
Law, Public Safety, Corrections and Security	Courts and Criminal Procedure Criminal Investigation Emergency Communications
Manufacturing	Metal Trades I Technology Systems Welding I
Marketing, Sales and Service	Advertising Entrepreneurship Marketing Dynamics Professional Selling
Science, Technology, Engineering and Mathematics	Technical Introduction to Computer-Aided Drafting Introduction to Electrical/Electronic Careers Introduction To Engineering Design
Transportation, Distribution and Logistics	Automotive Technician I Introduction To Transportation Service Careers

* Complete listing of courses can be found at http://www.houstonisd.org/portal/site/CareerTech.

APPENDIX B
Enrollment in CTE Courses by Secondary Schools with Codes 2 and 3, 2010–2011

	Total	AG	% AG	AC	% AC	AV	% AV	BS	% BS	CP	% CP
District Totals	20,067	775	3.9	588	2.9	785	3.9	5,065	25.2	263	1.3
School Name											
Austin HS	2,313	176	7.6	188	8.1	0	0.0	649	28.1	22	1.0
Bellaire HS	1,025	177	17.3	0	0.0	26	2.5	475	46.3	0	0.0
Challenge HS	6	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0
Chavez HS	809	137	16.9	2	0.2	29	3.6	131	16.2	9	1.1
Cont Learn Ctr HS	30	0	0.0	0	0.0	0	0.0	7	23.3	0	0.0
Davis HS	415	0	0.0	0	0.0	17	4.1	35	8.4	7	1.7
DeBakey HS	1,027	0	0.0	0	0.0	0	0.0	162	15.8	0	0.0
East Early College HS	98	0	0.0	0	0.0	0	0.0	33	33.7	0	0.0
Eastwood Academy	196	0	0.0	0	0.0	0	0.0	67	34.2	2	1.0
Energized for E-STEM Central HS	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Furr HS	179	0	0.0	39	21.8	0	0.0	34	19.0	5	2.8
Harper	31	4	12.9	5	16.1	0	0.0	0	0.0	0	0.0
High School Bus & Eco Success	7	0	0.0	0	0.0	0	0.0	7	100.0	0	0.0
High School LECJ	995	0	0.0	0	0.0	0	0.0	255	25.6	0	0.0
Houston Academy for Int'l	7	0	0.0	0	0.0	0	0.0	7	100.0	0	0.0
Houston Math/Sci./Tech. Center	239	0	0.0	17	7.1	0	0.0	67	28.0	3	1.3
Jones HS	50	0	0.0	0	0.0	0	0.0	8	16.0	9	18.0
Jordan HS	1,370	0	0.0	41	3.0	242	17.7	210	15.3	32	2.3
Kashmere HS	66	0	0.0	0	0.0	0	0.0	8	12.1	3	4.5
Lamar HS	2,004	252	12.6	99	4.9	130	6.5	358	17.9	6	0.3
Leader's Academy HS	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
Lee HS	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Madison HS	551	29	5.3	0	0.0	20	3.6	185	33.6	21	3.8
Milby HS	1,476	0	0.0	60	4.1	59	4.0	212	14.4	0	0.0
Ninth Grade Prep. Acad.	22	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
REACH HS	19	0	0.0	1	5.3	0	0.0	12	63.2	0	0.0
Reagan HS	295	0	0.0	2	0.7	2	0.7	60	20.3	28	9.5
Scarborough HS	268	0	0.0	54	20.1	28	10.4	133	49.6	0	0.0
Sharpstown HS	64	0	0.0	0	0.0	0	0.0	29	45.3	12	18.8
Sterling HS	331	0	0.0	18	5.4	13	3.9	24	7.3	6	1.8
Waltrip HS	2,082	0	0.0	0	0.0	0	0.0	588	28.2	35	1.7
Washington HS	170	0	0.0	2	1.2	18	10.6	63	37.1	10	5.9
Westbury HS	1,766	0	0.0	43	2.4	74	4.2	772	43.7	16	0.9
Westside HS	1,139	0	0.0	0	0.0	110	9.7	93	8.2	0	0.0
Wheatley HS	887	0	0.0	7	0.8	0	0.0	354	39.9	0	0.0
Worthing HS	82	0	0.0	9	11.0	1	1.2	9	11.0	31	37.8
Yates HS	45	0	0.0	1	2.2	16	35.6	17	37.8	0	0.0

AG= Agriculture; AC= Architecture/Construction; AV= Arts, A/V Technology and Communications, BS= Business, Management and Administration; CP= Career Preparation I.
Note: Enrollment percentages are calculated based on campus totals and campus course participation (across rows).

APPENDIX B (continued)
Enrollment in CTE Courses by Secondary Schools with Codes 2 and 3, 2010–2011

	Total	CR	% CR	ED	% ED	FN	% FN	GV	% GV	HS	% HS
District Totals	20,067	17	0.1	236	1.2	452	2.3	158	0.8	2,492	12.4
School Name											
Austin HS	2,313	0	0.0	0	0.0	135	5.8	0	0.0	17	0.7
Bellaire HS	1,025	0	0.0	0	0.0	32	3.1	0	0.0	32	3.1
Challenge HS	6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Chavez HS	809	0	0.0	26	3.2	11	1.4	0	0.0	247	30.5
Cont Learn Ctr HS	30	0	0.0	0	0.0	1	3.3	0	0.0	2	6.7
Davis HS	415	0	0.0	0	0.0	5	1.2	0	0.0	38	9.2
DeBakey HS	1,027	0	0.0	0	0.0	0	0.0	0	0.0	865	84.2
East Early College HS	98	0	0.0	0	0.0	12	12.2	0	0.0	0	0.0
Eastwood Academy	196	0	0.0	0	0.0	9	4.6	0	0.0	18	9.2
Energized for E-STEM Central HS	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Furr HS	179	0	0.0	0	0.0	0	0.0	0	0.0	18	10.1
Harper	31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
High School Bus & Eco Success	7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
High School LECJ	995	0	0.0	0	0.0	31	3.1	158	15.9	56	5.6
Houston Academy for Int'l	7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Houston Math/Sci./Tech. Center	239	0	0.0	1	0.4	0	0.0	0	0.0	82	34.3
Jones HS	50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Jordan HS	1,370	0	0.0	61	4.5	23	1.7	0	0.0	80	5.8
Kashmere HS	66	0	0.0	0	0.0	0	0.0	0	0.0	16	24.2
Lamar HS	2,004	17	0.8	0	0.0	72	3.6	0	0.0	84	4.2
Leader's Academy HS	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Lee HS	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Madison HS	551	0	0.0	0	0.0	11	2.0	0	0.0	0	0.0
Milby HS	1,476	0	0.0	0	0.0	0	0.0	0	0.0	168	11.4
Ninth Grade Prep. Acad.	22	0	0.0	0	0.0	0	0.0	0	0.0	14	63.6
REACH HS	19	0	0.0	0	0.0	0	0.0	0	0.0	5	26.3
Reagan HS	295	0	0.0	0	0.0	17	5.8	0	0.0	63	21.4
Scarborough HS	268	0	0.0	0	0.0	16	6.0	0	0.0	0	0.0
Sharpstown HS	64	0	0.0	0	0.0	1	1.6	0	0.0	15	23.4
Sterling HS	331	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Waltrip HS	2,082	0	0.0	116	5.6	0	0.0	0	0.0	139	6.7
Washington HS	170	0	0.0	32	18.8	7	4.1	0	0.0	0	0.0
Westbury HS	1,766	0	0.0	0	0.0	14	0.8	0	0.0	169	9.6
Westside HS	1,139	0	0.0	0	0.0	46	4.0	0	0.0	293	25.7
Wheatley HS	887	0	0.0	0	0.0	0	0.0	0	0.0	65	7.3
Worthing HS	82	0	0.0	0	0.0	4	4.9	0	0.0	6	7.3
Yates HS	45	0	0.0	0	0.0	5	11.1	0	0.0	0	0.0

CR=Career Preparation II; ED= Education and Training; FN= Finance; GV=Government and Public Administration; HS= Health Science.
Note: Enrollment percentages are calculated based on campus totals and campus course participation (across rows).

APPENDIX B (cont.)
Enrollment in CTE Courses by Secondary Schools with Codes 2 and 3, 2010–2011

	Total	HT	% HT	HU	% HU	IT	% IT	LW	% LW	MN	% MN
District Totals	20,067	899	4.5	884	4.4	2,683	13.4	718	3.6	351	1.7
School Name											
Austin HS	2,313	41	1.8	44	1.9	142	6.1	0	0.0	0	0.0
Bellaire HS	1,025	47	4.6	36	3.5	101	9.9	0	0.0	0	0.0
Challenge HS	6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Chavez HS	809	11	1.4	5	0.6	11	1.4	23	2.8	0	0.0
Cont Learn Ctr HS	30	0	0.0	18	60.0	0	0.0	0	0.0	1	3.3
Davis HS	415	154	37.1	58	14.0	86	20.7	0	0.0	0	0.0
DeBakey HS	1,027	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
East Early College	98	0	0.0	0	0.0	0	0.0	33	33.7	0	0.0
Eastwood Academy	196	0	0.0	0	0.0	93	47.4	0	0.0	0	0.0
Energized for E-STEM Central HS	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Furr HS	179	0	0.0	41	22.9	0	0.0	0	0.0	0	0.0
Harper	31	6	19.4	0	0.0	9	29.0	0	0.0	0	0.0
High School Bus & Eco Success	7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
High School LECJ	995	0	0.0	0	0.0	18	1.8	477	47.9	0	0.0
Houston Academy for Int'l	7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Houston Math Sci./Tech. Center	239	0	0.0	16	6.7	29	12.1	0	0.0	0	0.0
Jones HS	50	0	0.0	0	0.0	10	20.0	0	0.0	0	0.0
Jordan HS	1,370	123	9.0	134	9.8	99	7.2	0	0.0	22	1.6
Kashmere HS	66	0	0.0	8	12.1	20	30.3	0	0.0	0	0.0
Lamar HS	2,004	301	15.0	0	0.0	478	23.9	0	0.0	26	1.3
Leader's Academy	1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Lee HS	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
Madison HS	551	4	0.7	82	14.9	17	3.1	0	0.0	51	9.3
Milby HS	1,476	0	0.0	97	6.6	393	26.6	0	0.0	237	16.1
Ninth Grade Prep. Acad.	22	0	0.0	0	0.0	8	36.4	0	0.0	0	0.0
REACH HS	19	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0
Reagan HS	295	0	0.0	0	0.0	42	14.2	0	0.0	0	0.0
Scarborough HS	268	0	0.0	0	0.0	37	13.8	0	0.0	0	0.0
Sharpstown HS	64	0	0.0	0	0.0	7	10.9	0	0.0	0	0.0
Sterling HS	331	0	0.0	70	21.1	24	7.3	0	0.0	14	4.2
Waltrip HS	2,082	84	4.0	47	2.3	429	20.6	173	8.3	0	0.0
Washington HS	170	0	0.0	4	2.4	4	2.4	0	0.0	0	0.0
Westbury HS	1,766	0	0.0	132	7.5	248	14.0	0	0.0	0	0.0
Westside HS	1,139	82	7.2	50	4.4	253	22.2	12	1.1	0	0.0
Wheatley HS	887	46	5.2	27	3.0	114	12.9	0	0.0	0	0.0
Worthing HS	82	0	0.0	12	14.6	10	12.2	0	0.0	0	0.0
Yates HS	45	0	0.0	2	4.4	0	0.0	0	0.0	0	0.0

HT= Hospitality and Tourism; HU= Human Services; IT= Information Technology; LW= Law, Public Safety, Corrections, and Security; MN= Manufacturing.
Note: Enrollment percentages are calculated based on campus totals and campus course participation (across rows).

APPENDIX B (cont.)
Enrollment in CTE Courses by Secondary Schools with Codes 2 and 3, 2010–2011

	Total	MK	% MK	PS	% PS	SC	% SC	TD	% TD
District Totals	20,067	787	3.9	21	0.1	1,916	9.5	977	4.9
School Name									
Austin HS	2,313	184	8.0	0	0.0	453	19.6	262	11.3
Bellaire HS	1,025	34	3.3	21	2.0	0	0.0	44	4.3
Challenge HS	6	0	0.0	0	0.0	0	0.0	0	0.0
Chavez HS	809	0	0.0	0	0.0	167	20.6	0	0.0
Cont Learn Ctr HS	30	1	3.3	0	0.0	0	0.0	0	0.0
Davis HS	415	0	0.0	0	0.0	4	1.0	11	2.7
DeBakey HS	1,027	0	0.0	0	0.0	0	0.0	0	0.0
East Early College	98	20	20.4	0	0.0	0	0.0	0	0.0
Eastwood Academy	196	0	0.0	0	0.0	7	3.6	0	0.0
Energized for E-STEM Central HS	1	0	0.0	0	0.0	1	100.0	0	0.0
Furr HS	179	0	0.0	0	0.0	42	23.5	0	0.0
Harper	31	0	0.0	0	0.0	0	0.0	7	22.6
High School Bus & Eco Success	7	0	0.0	0	0.0	0	0.0	0	0.0
High School LECJ	995	0	0.0	0	0.0	0	0.0	0	0.0
Houston Academy for Int'l	7	0	0.0	0	0.0	0	0.0	0	0.0
Houston Math Sci./Tech. Center	239	0	0.0	0	0.0	0	0.0	24	10.0
Jones HS	50	1	2.0	0	0.0	22	44.0	0	0.0
Jordan HS	1,370	75	5.5	0	0.0	104	7.6	124	9.1
Kashmere HS	66	0	0.0	0	0.0	9	13.6	2	3.0
Lamar HS	2,004	67	3.3	0	0.0	114	5.7	0	0.0
Leader's Academy	1	0	0.0	0	0.0	0	0.0	0	0.0
Lee HS	1	0	0.0	0	0.0	0	0.0	0	0.0
Madison HS	551	75	13.6	0	0.0	22	4.0	34	6.2
Milby HS	1,476	61	4.1	0	0.0	189	12.8	0	0.0
Ninth Grade Prep. Acad.	22	0	0.0	0	0.0	0	0.0	0	0.0
REACH HS	19	0	0.0	0	0.0	0	0.0	0	0.0
Reagan HS	295	23	7.8	0	0.0	3	1.0	55	18.6
Scarborough HS	268	0	0.0	0	0.0	0	0.0	0	0.0
Sharpstown HS	64	0	0.0	0	0.0	0	0.0	0	0.0
Sterling HS	331	17	5.1	0	0.0	46	13.9	99	29.9
Waltrip HS	2,082	121	5.8	0	0.0	271	13.0	79	3.8
Washington HS	170	0	0.0	0	0.0	30	17.6	0	0.0
Westbury HS	1,766	37	2.1	0	0.0	116	6.6	145	8.2
Westside HS	1,139	0	0.0	0	0.0	200	17.6	0	0.0
Wheatley HS	887	67	7.6	0	0.0	116	13.1	91	10.3
Worthing HS	82	0	0.0	0	0.0	0	0.0	0	0.0
Yates HS	45	4	8.9	0	0.0	0	0.0	0	0.0

MK= Marketing, Sales, and Service; PS= Problems and Solutions; SC= Science, Technology, Engineering, and Mathematics; TD= Transportation, Distribution and Logistics.
Note: Enrollment percentages are calculated based on campus totals and campus course participation (across rows).