

**AN EVALUATION OF TEXAS
CAREER AND TECHNOLOGY EDUCATION
PROGRAMS FUNDED UNDER THE
CARL D. PERKINS VOCATIONAL
EDUCATION ACT**

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EXECUTIVE SUMMARY

Career and technical education (CTE, now commonly referred to as *career and technology education*) provides students with rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions (Library of Congress, n.d.).

CTE student achievement and program performance must be regularly monitored to provide a basis upon which to make program changes and improvements. In 2006, Educational Service Center (ESC) Region VI was contracted by the Texas Education Agency (TEA) to conduct a comprehensive evaluation of Texas CTE programs. The evaluation provided an examination of the characteristics and effectiveness of existing programs as well as valid data that can be used to develop future program plans to better meet the needs of Texas students.

The following are the key findings from the evaluation:

- The number of teachers attending their respective professional development conference is dwindling each year and dramatically so in the last three years. Yet teachers and administrators say the training received at these conferences is very effective.
- CTE enrollment data show the percentage of each Public Education Information Management System (PEIMS) subgroup population is represented quite similarly to the non-CTE student population. However, the Hispanic subgroup consistently has at least 4.7% more students enrolled in the Tech-Prep program than in the non-CTE program. The white subgroup, however, consistently has over 3.4% fewer students enrolled in the Tech-Prep program than in the non-CTE program. School counseling and guidance processes for CTE recruitment and enrollment, or the students' motivation for enrolling in CTE, were not explored in this study but warrant further exploration to explain these trends and to ensure that tracking based on race is not occurring.
- Focus group participants indicated that Career and Technology Student Organizations (CTSOs) are a high priority due to their focus on real-world skills, and many administrators and teachers felt that these organizations are effective in developing students' leadership skills and other positive outcomes. However, the student participation rates do not reflect this priority. Future Farmers of America (FFA) was considered the most effective by school staff and had the highest proportion of participating students.
- Administrator and teacher survey responses indicated that many respondents were "neutral" with regard to the Project Lead the Way (PLTW) and Special Projects Resource Center (SPACE) programs. This may be due to a lack of knowledge about the programs.
- There is a performance gap between CTE and non-CTE students on both the Texas Assessment of Knowledge and Skills (TAKS) and Higher Education Readiness Component (HERC), although it is decreasing in reading/English Language Arts (ELA). Another interesting trend for both math and reading/ELA is that the differences in passing rates peak in the early high school years. Regression analyses examined the effect

of CTE involvement regardless of the type of CTE program relative to the effects of ethnicity, economic status, and school type (middle or high school). The model showed that being enrolled in any CTE had a small, negative impact on TAKS scores. These findings suggest the need for increased cross-training with academic instructors so that CTE teachers can improve their core academic instruction, especially during the early high school years.

- The analyses of TAKS and HERC results also show that the more structured the CTE program, the better the students performed on the reading/ELA TAKS and HERC, although still not as well as the non-CTE students. This dynamic is especially true for students from ethnic minority backgrounds on the reading HERC. Students of Hispanic origin participating in Tech-Prep programs outperformed non-CTE students of Hispanic origin on the reading HERC.
- Findings on CTE's impact on graduation rates are encouraging. CTE students are more likely to remain in school and graduate than non-CTE students. This difference grows as the structure of the CTE program increases as well.
- Analyses of the HERC and graduation plans show that CTE students who plan to go to college lag behind non-CTE students who plan to go college in meeting the HERC components in reading and math.

SECTION 1: INTRODUCTION

An increasing focus on accountability standards requires that schools approach the education of all students using the most effective teaching, monitoring, and assessment methods. A very important part of the Texas plan for meeting and exceeding these standards is the Career and Technology Education (CTE) program funded in part by the Carl D. Perkins Vocational and Technical Education Act of 1998. It is important that schools be held accountable for the use of these funds and the impact made on the school, especially in the area of student achievement and performance.

Formerly known as vocational education, CTE no longer focuses solely on preparing students to enter the world of work immediately after high school graduation. CTE subject areas include business, trade and industrial, health occupations, agricultural sciences, family and consumer sciences, marketing, and technology education.

According to the United States Department of Education's Office of Educational Research and Improvement (Association for Career and Technical Education, n.d.), there are 11 million secondary and post-secondary CTE students in the U.S. These students are enrolled in CTE courses at the middle school and high school levels, two-year community colleges and technical schools, as well as other post-secondary institutions. Programs serving these students receive a total of about \$1.3 billion annually in federal funding through the Carl D. Perkins Vocational and Technical Education Act, which accounts for about 8-10% of their budgets.

The Texas CTE program consists of programs in both secondary and post-secondary schools. Improvements in CTE student achievement and performance must be regularly monitored to provide a basis upon which to base program changes and improvements. The overall evaluation of any educational program must also include an analysis of the more effective domain influences underlying its success or failure (Worthen & Sanders, 1987). In 2006, Educational Service Center (ESC) Region VI was contracted by the Texas Education Agency (TEA) to conduct a comprehensive evaluation of Texas CTE programs. The evaluation provided an examination of the characteristics and effectiveness of existing programs as well as valid data and information that may be used to develop future program plans to better meet the needs of Texas students.

Purpose

The purpose of the CTE evaluation study was to gather and analyze both quantitative and qualitative data and information that would provide measurable evidence of the effectiveness of CTE programs in Texas in reaching the goals for students set by the Texas Legislature:

“Each public school student shall master the basic skills and knowledge necessary for:

1. managing the dual roles of family member and wage earner; and
2. gaining entry-level employment in a high-skill, high wage job or continuing the student’s education at the post-secondary level” (*Texas Education Code*, § 29.181).

In addition to the objective student performance data gathered by TEA, this evaluation collected information regarding the perceptions of stakeholders involved in the CTE program at the secondary level. Worthen and Sanders (1987) note that while there may be a statistical significance in measures like test scores, the educational and practical significance or value of a program must also be judged against what is delivered relative to what is expected by stakeholders. For this reason, it was important that the evaluation provide an opportunity for various audiences to review and react to the program and its impact.

Study Objectives

The overall objectives of the CTE evaluation study are:

- 1) to determine the scope and effectiveness of statewide professional development training for CTE teachers during each of the 2000-2005 school years;
- 2) to determine the relationship between the size, scope and quality of CTE programs and the attainment of academic skills and increase in graduation rates;
- 3) to determine the effect that the Tech-Prep program of study, Advanced Technical Credit (ATC) opportunities, and dual credit opportunities have on improving graduation rates and post-secondary enrollment, retention and completion rates;
- 4) to examine the effectiveness of curricular Career and Technology Student Organizations (CTSOs) in developing leadership skills, keeping students engaged in school, and demonstrating academic and technical skill attainment;
- 5) to evaluate the effectiveness of the following special projects in achieving their stated goals:
 - a. Project Lead The Way (PLTW) – increasing academic and technical skills
 - b. Special Populations Resource Center (SPACE) – providing resources and technical assistance to teachers to meet the needs of special populations
 - c. Advanced Technical Credit – the documentation of the application, training, and eligibility approval of ATC program teachers
- 6) to evaluate the effectiveness of the six Educational Excellence grants, including the quality of curriculum resources provided to teachers.

The study was conducted between March 2006 and September 2006, using existing demographic and achievement data as well as survey and qualitative data. Qualitative data gathered served to inform the quantitative portion of the overall evaluation study. Gerhard (1981, p.9) indicates that when all parts of the evaluative process are combined into a single unifying conceptual model, the decision-making process is well served.

After this introduction, a review of the literature on the effectiveness of CTE programs is presented, followed by a discussion of the various quantitative and qualitative methods used to gather information for the report. The next section presents the main findings of the evaluation. A concluding section summarizes findings and makes substantive recommendations for program improvement.

SECTION 2: REVIEW OF LITERATURE

The origins of career and technical education can be traced to the 1917 passage of the Smith-Hughes Act, in which federal funding was first available to states for the establishment of high school vocational education courses in agriculture, home economics, and trade and industrial education. The “George Acts” amended the Smith-Hughes Act by increasing funding in existing vocational education programs (George-Reed Act of 1929, George-Ellzey Act of 1934, George-Dean Act of 1936, and the George-Barden Act of 1946), while also establishing new programs. Distributive education, now called marketing education, was established by the George-Ellzey Act of 1934. Significant funding increases were also a part of the National Defense Act of 1940, while funding and program expansion was included in the Vocational Education Act of 1963 as well as its 1968 and 1976 amendments (Talbert, Vaughn, Croom and Lee, 2007).

Beginning in 1984, the Federal Vocational Education Acts began to bear the name of Carl Perkins. These elements of legislation were intended to modernize vocational education while making it more accessible to all students. They focused on meeting the advances of technology while also increasing curriculum integration efforts between vocational and academic programs. The 1996 act included an emphasis on the development of articulation agreements between secondary and post-secondary institutions (Talbert, et al., 2007).

In terms of federal congressional efforts toward career and technical education, it remains to be seen what effect, if any, the Elementary and Secondary Education Act of 2001 may have on CTE programs. More commonly known as No Child Left Behind, the Act supplements state and local funding for education while calling for a stronger emphasis on high-stakes testing and focus on accountability.

Past research involving the evaluation of CTE programs has revealed a variety of conclusions and implications. Similarly, other studies have focused on the effects of other educational elements upon career and technical education, such as the increased emphasis on academic subjects and college readiness. A study by Plank (2001) found that dual (academic and CTE) and academic concentrators differed only slightly on standardized tests in reading, history, science or mathematics. Plank even suggested that the small advantage displayed by purely academic concentrators may be partially attributable to the additional coursework they completed in advanced subjects. The study further suggested that a mid-range (three CTE credits per four academic credits) integration of CTE and academic scheduling has a significant potential to reduce the likelihood of a student dropping out of school.

Specific, yet less noticeable, CTE programs have also yielded some positive results. A five-year study of Texas Grade 10-12 students found that students in Tech-Prep programs achieved significant benefits over students who were not in the program. These Tech-Prep students had lower dropout rates, higher attendance rates, and slightly higher graduation rates (Brown, 2000). Bottoms and Presson (2000) reported that students in High Schools That Work exceeded the national average of CTE students in reading, mathematics, and science achievement.

CTE's role in the future of our nation and economy is subject to some debate. Today, less than 20% of the workforce is in jobs classified as unskilled, while 60% of the jobs are classified as skilled occupations and 20% as professional. Lynch (2000) stated the importance for any redirection of high school career and technical education to recognize the role the new economy is playing for all students to have an increasingly higher level of academics, and to know more and be able to learn even more. He further alluded to public survey data that led to two conclusions related to CTE: the public wants career education and work skills included as critical components of the public school curriculum; and, parents expect their children to attend college. Lynch went so far as to discuss the integral need of a "new" career and technical education as part of the reform of the American high school.

Despite the goal of No Child Left Behind that all students receive a high school diploma, the fact remains that some students will not complete high school. The National Center for Educational Statistics (NCES; 1996) found that of every 100 students who enter Grade 5, only 47 will enter college and only 24 will earn a bachelor's degree. The remaining 76 who do not earn a bachelor's degree must obtain the necessary life skills and employability characteristics from programs such as career and technical education. The NCES (2004) also reported that only 72.2% of the U.S. population that was age 17 in 2001-2002 had received a high school diploma.

Evaluating educational programs is not comprised of a one-stop measure or a one-size-fits-all approach. Worthen and Sanders (1987) note that although there may be a statistical significance in measures such as test scores, the educational and practical significance or value of a program must also be judged against what is delivered relative to what is expected by stakeholders. They further noted that the overall evaluation of any educational program must also include an analysis of the more effective domain influences underlying its success or failure.

Naturally, quantitative means for conducting program evaluations has its place. Examining standardized tests results, demographic data of program participants and stakeholders, and enrollment, retention and completion data are integral to recognizing program effectiveness from a numerical standpoint. However, qualitative methodologies further allow for a completeness of description outside of the review of isolated variables. Data collected can be interpreted beyond the inferences and generalizations drawn from quantitative research.

The vastness of a program can necessitate a need for various methodologies to accurately portray its status, success, and needs. Mixed-method approaches are commonly used for such an evaluation, and as Cook (1985) and Mathison (1988) point out, the various challenges of program evaluation require the use of multiple tools from the evaluators' complete repertoire of methodologies. Qualitative and quantitative methods both have their advantages and make their own substantial contribution to program evaluation. As an example, qualitative methods can enhance the quantitative design of the evaluation by improving the sampling framework and the focus of the overall design. Furthermore, qualitative means can be used to establish the priority of information needs. It is also possible to use qualitative methods to verify and validate certain results obtained through quantitative means (Madey, 1982). Similarly, quantitative methodologies can enrich qualitative approaches. Such is true in the design element, in which quantitative methods can help identify representative and unrepresentative cases, while in the data analysis portion of research, quantitative instruments can be used to verify observations

collected during informal visits (Madey, 1982). A more direct explanation of using qualitative methods in complimentary, not contradictory terms, is provided by Rao and Woolcock (2002). They state that the more narrative, personalized information provided by open-ended focus group discussions and in-depth interviews (qualitative means) helps us understand and better interpret a quantitative result. Qualitative methods can also facilitate crosschecking and replication.

SECTION 3: METHODOLOGY

The components of the CTE evaluation utilized existing achievement and performance data as well as electronic and written survey instruments and qualitative case study procedures. Accepted quantitative and qualitative collection and analysis methods were used (Patton, 1990; Key, 1991). Objective data consisted of:

- Results from standardized state assessments;
- Demographic data taken from Public Education Information Management System (PEIMS) records;
- Professional development evaluation records from state staff;
- Data provided by CTSO staff or advisors;
- Administrator, teacher, and student survey results

The population for this evaluation study included stakeholders in all secondary CTE programs in Texas. Every attempt was made to gather data from the entire population. For the qualitative portion of the evaluation, campuses were selected for review by ESC staff.

The following sections review the data collection and analysis processes used for this evaluation.

Local Evaluation Data

A comprehensive program evaluation instrument (see Appendix A) was distributed to each local CTE program via the internet and/or in hard-copy. Local school administrators conducted the evaluations and submitted findings to the contractor for data disaggregation and validation. The response distributions for each of the items on this instrument can be found in Appendix B. General validity of local evaluation findings was validated by comparing the findings with Academic Excellence Indicator System (AEIS) and PEIMS data from TEA.

Survey Development and Administration

Two separate survey instruments were developed to gather data from CTE program administrators and teachers, and a third to gather data from students (see Appendix C). Survey items solicited responses about perceptions and attitudes as they relate to the following aspects of the CTE program:

- Effectiveness of professional development activities
- Impact on school climate and student achievement
- Staff buy-in / ownership of program and process
- Career and Technology Student Organizations
- Barriers to implementation
- Program sustainability
- Overall effectiveness of the CTE program

The format of the survey items were both quantitative and qualitative in nature. Items requiring respondents to indicate a perceived level of agreement or satisfaction with an event or phenomenon used Likert-type scales. Survey items that asked whether a particular event, method, model, etc. was observed or used required a yes/no response with opportunity for open-ended comments.

Validity, including face, content and construct validity, was determined by having a draft of the instrument reviewed by TEA staff and other educators. These reviewers constituted a panel of experts that ensured that the survey included a set of items that was representative of the constructs being measured. Face validity was determined by the panel of experts as well as through a pilot test of the instrument with educators not included in the study population, but similar in make up.

The survey instrument was divided into sections that fit logically with the objectives of the evaluation. Pilot test data were used to determine internal consistency coefficients, using Cronbach's alpha, for each section of the survey instrument. Alpha coefficients ranged from 0.72 to 0.94 for the various sections of the different survey instruments. High internal consistency coefficients provide a good estimate of the reliability of a set of survey items (Key, 1990).

Following the evaluation of the draft survey instruments, items were loaded onto a web page designed and maintained by the contractor. The web site was secured and encrypted to maintain the confidentiality of respondents. Responses entered via the web page were loaded and stored in a database operated and maintained by the contractor.

Upon final approval by the TEA in late May 2006, the web-based survey was activated. Letter and e-mail communications were sent to all CTE administrators and staff informing them of the survey and providing instructions for accessing the website and entering responses.

Response rates for the surveys were:

Administrators: 480 (28%)

Teachers: 1,346 (12%)

Students: 4,931 (1%)

The response rate was especially low for students due to the late implementation of the surveys. Many schools had already dismissed students for the summer by the time the surveys were activated. As well, care should be taken when reviewing student survey data as the majority (67.3%) of student surveys were received from the South Texas region. The distribution of responses for the survey items that addressed perceptions can be found in Appendix D.

Qualitative Data

A randomized list of campuses in each ESC region was sent to each service center. Campuses were selected from this list by ESC staff across the state to be involved in the qualitative case study portion of the evaluation. Other than the randomized list sent to ESC staff, the selection process from that list was left up to the ESC staff. The purpose of the case studies was to be to gather information about the CTE program's impact on the school and community from administrators, teachers and other stakeholders in a natural environment using accepted interview techniques. Banta, et. al. (1996) indicate that interviews can yield much richer data and often uncover responses that may be hidden in traditional surveys.

Site visits were made to some of the selected schools by service center personnel for the purpose of conducting individual interviews and local program evaluations. Interviews and/or local program evaluations were conducted by ESC staff from 12 of the 20 regions. The interview protocols for teacher and administrators can be found in Appendix E. A total of 20 schools were visited. Table 1 shows the distribution of visits made to different geographical areas of the state.

Table 1
Distribution of School Site Visits by Geographical Region

Geographic Region	N	%
South	4	20.0%
Southeast	2	10.0%
West	4	20.0%
Central	4	20.0%
North	2	10.0%
Panhandle	4	20.0%

In addition to site visits, the contractor conducted a one-day Texas Education Television Network (TETN) focus group session for the 20 ESCs in the state to discuss various topics related to CTE in Texas. Each ESC was responsible for selecting and contacting a suggested list of participants for the conference:

- CTE teachers – three from each CTE curriculum area
- One Tech-Prep representative
- One Community College representative
- One University representative
- One CTE representative from the ESC
- One Special Education representative
- One School Counselor
- Three local school administrators
- Three area employers

Of the 20 service centers, 16 participated in the TETN conference. Participants were asked to provide feedback and respond to a predetermined set of questions and topics related to the objectives of the CTE evaluation study.

Focus group and interview protocols were developed in the same manner as the survey instruments with review by a panel of experts and final approval by the TEA. Interviews were transcribed by the ESC personnel and transcripts from site visits and TETN conferences were entered into the NUD*IST[®] computer program for categorization and analysis.

Survey Data Analysis

Initial analysis of survey responses included descriptive statistics regarding response frequency and distribution. While surveys were confidential, demographic data included sex, ethnicity, age, years teaching experience, tenure at current school, and CTE program type, among other variables, with response distribution trends between groups analyzed using cross-tabs and chi-square procedures. The data collected through the surveys were nominal or ordinal in scale, and therefore a conservative approach to data analysis including non-parametric methods was employed. However, Velleman and Wilkinson (1993) argue that Steven's typology of scale is too strict for real-world data. Bearing this in mind, level of agreement or satisfaction scales (i.e., Likert-type) were treated as interval data for certain analyses.

Survey response distributions were also analyzed using past and present accountability ratings as groupings between which to measure trends. Relationships between survey results and student achievement as well as school ratings was examined by using crosstabs and other distribution measurement analyses.

Qualitative Data Analysis

Interview, focus group and case study data were analyzed and reported using commonly accepted qualitative procedures (Creswell, 1998):

1. Organization of data. The individual interviews were recorded by the interviewer, transcribed and loaded into a qualitative data analysis software program called NUD*IST[®].
2. Categorization of data. Categories were identified (coded) and the data clustered into meaningful groups using NUD*IST[®] as the organizational tool.
3. Interpretation of the data. Specific statements that fell into like clusters were examined for specific meanings relative to the purpose of the study.
4. Identification of patterns. The data and their interpretations were scrutinized for underlying themes and patterns that characterize the CTE program.
5. Synthesis. An overall portrait of participants' responses was constructed where conclusions and recommendations were drawn based on the data presented.

Categories and patterns identified in the case study data were used to relate back to survey data and accountability measures. The combined analysis of survey, case study, and student achievement data effectively constituted a triangulation of data that provides more validity and transferability to the evaluation (Merriam, 1998).

SECTION 4: FINDINGS

This section presents findings from a comprehensive evaluation of the quality and effectiveness of CTE programs in Texas. These findings include:

- characteristics of CTE programs and their participants;
- the scope and quality of professional development opportunities for CTE staff;
- perceptions of the quality and effectiveness of CTSOs;
- perceptions of the quality and effectiveness of CTE special projects;
- perceptions of the effectiveness of CTE Educational Excellence grants;
- descriptions of required and allowable uses of Perkins funds by CTE programs; and
- results from analyses of the relationships between CTE program participation and various measures of student achievement outcomes.

Characteristics of CTE Programs and Their Participants

Types of CTE Programs and Total Enrollment

The latest PEIMS data that summarizes the basic composition of the Texas secondary CTE program is from the 2004-2005 school year. Table 2 shows the number of different courses in each CTE division, number of full-time equivalent (FTE) instructional staff, and total enrollment. By far, the largest number of CTE students were enrolled in Business Education, followed by Family & Consumer Science, and Technology Education.

Table 2
Basic Composition of CTE Programs by Division

CTE Division	No. of Courses	Total FTE Staff	Total Enrollment
Agricultural Science & Technology	60	1,412	116,577
Business Education	57	3,856	410,956
Family & Consumer Science	87	2,306	227,263
Health Science Technology	34	726	67,345
Marketing Education	30	405	37,551
Career Investigation	3	380	46,184
Technology Education	67	1,444	162,311
Trade & Industrial Education	177	1,762	130,226

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

Note: Students can be enrolled in multiple programs simultaneously.

Student CTE Enrollment and Demographics

The Texas PEIMS database codes CTE students into three categories based on how in-depth the student follows a course plan. The codes are:

1. A student who takes random CTE courses as electives.
2. A student who is following a coherent sequence of CTE courses.
3. A student who is enrolled in a Tech-Prep program.¹

¹ Tech-Prep is a college-preparatory program for a technical career that offers high school students a focused, sequenced program of secondary and post-secondary study consisting of a four-year high school graduation plan (combining the academic courses needed for success in college and technical courses that begin to prepare students

For the purpose of demographic analysis, a CTE student was defined as any student having a PEIMS CTE code of 1: Random CTE Elective; 2: CTE Coherent Sequence; or 3: Tech-Prep. For consistency across measures, the analysis for this evaluation began with the 2003-2004 school year, the first year in which the Texas legislature mandated the use of the Texas Assessment of Knowledge and Skills (TAKS) test.

There is a slight trend toward a greater percentage of CTE students moving into the Tech-Prep program. This trend is shown in Table 3.

Table 3
Overall CTE Program Type Enrollment Trends for 2003 through 2006

Year	Elective CTE	Coherent Sequence	Tech-Prep
	% of CTE Students	% of CTE Students	% of CTE Students
2003-2004	51%	34%	15%
2004-2005	50%	33%	17%
2005-2006	48%	34%	18%

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

While the coherent sequence code area has remained virtually unchanged, there is a slight trend away from casual CTE electives toward more formalized study, particularly in Tech-Prep, with a three percentage point increase in evidence between 2003-04 and 2005-06 in the proportion of CTE students enrolled in a tech-prep program. The point was brought up during the TETN session that more employers were willing to pay well over minimum wage to students who were willing to take on internships, and then return as full-time, well trained employees after graduation. This could be one reason for the slight trend toward Tech-Prep programs; however, whether students knew about this program incentive and if it was a motivating factor were not studied in this evaluation.

As shown in Table 4, the percentage of each PEIMS subgroup population among CTE students is represented quite similarly to the non-CTE student population. Notably, the Hispanic subgroup consistently has at least 4.7% more students enrolled in the Tech-Prep program than in the non-CTE program. The white subgroup, however, consistently has over 3.4% less students enrolled in the Tech-Prep program than in the non-CTE program. School counseling and guidance processes for CTE recruitment and enrollment, or the students' motivation for enrolling in the CTE, were not explored in this study but warrant further exploration to determine the explanation for these trends.

for a career) and a two-year associate of applied science (AAS) degree plan (or two-year postsecondary apprenticeship program). A key component of Tech-Prep is program articulation, which is a planned process linking educational institutions and educational experiences to assist students in making a smooth transition from one level of education to another without experiencing delays or duplication in learning.

Table 4

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

Scope and Quality of Professional Development Opportunities

In order to gain insight into the scope and quality of CTE professional development activities in the state, the researchers included survey items specifically asking for information regarding: (1) the numbers of staff attending professional development activities each year; (2) the perceived effectiveness of these activities; and (3) factors upon which decisions to attend or not to attend are based. Overall attendance numbers at statewide CTE professional development conferences were obtained from CTE program staff at TEA.

Each CTE program area at TEA holds an annual professional development conference during the year. These conferences are designed for teachers and administrators alike, but teachers typically comprise the majority of the audience. Table 5 shows that attendance at these conferences overall has declined over time, from 6,363 participants in 2000 to 4,394 participants in 2004 (this represents a 45% drop in the number of participants). The largest decline was evident for Marketing Education and Business Education, declining from 2,116 participants in 2000 to 1,131 participants in 2004 (this represents a 87% drop in the number of participants). It is unclear why this is the case, particularly since administrators and teachers indicated that they perceived the content of the professional development to be effective. This is a finding that merits further research.

Table 5
Attendance Figures for CTE Program Area Annual Professional Development Conferences

	2000	2001	2002	2003	2004
Agricultural Science & Technology	1,186	1,210	1,269	905	924
Marketing Education*	2,116	1,926	1,733	1,578	1,131
Business Education*					
Family & Consumer Science	1,480	1,470	1,407	1,273	1,112
Trade & Industrial Education	791	694	633	718	626
Health Science Technology	400	320	240	300	304
Technology Education	392	365	337	340	297
Total for all conferences	6,365	5,985	5,619	5,114	4,394

Source: Data compiled by Career and Technology Education Program Staff at the Texas Education Agency, 2006.

Note: Marketing and Business Education programs hold joint conferences.

Administrators (N=480) and teachers (N=976) were asked to identify the factors that influenced their decisions to attend state-level CTE professional development activities. Table 6 shows the distribution of responses to these factors by teachers and administrators. Both surveys allowed respondents to select as many factors as were relevant. The data indicate that both groups agreed on the importance of the top factors, including Content of Training, State Requirement, Time of Year, and Location. The two groups were in less agreement regarding the importance of Trainer Reputation, Length of Training, and Recommendations from Others.

Table 6
Factors Influencing Decisions to Attend CTE Professional Development Activities

	Admin. Ranking	Administrators	Teacher Ranking	Teachers
Content of Training	1	76.4%	1	43.2%
State Requirement	2	61.2%	2	35.8%
Time of Year	3	59.1%	3	30.3%
Location	4	49.4%	4	27.3%
Reputation of Trainer	5	32.7%	6	20.6%
Length of Training	6	31.8%	7	19.5%
Recommendations from Others	7	26.2%	5	23.4%
Availability of Stipend	8	23.5%	8	15.9%
Other Reasons	9	17.0%	9	13.1%

Source: CTE Administrator and Teacher Surveys, Texas Education Agency, 2006.

Administrators and teachers were asked to indicate how effective they felt the content of statewide professional development activities had been on improving various abilities. Table 7 shows the distribution of responses for the administrator survey. The data show that the majority of CTE administrators (ranging between 56% and 81%) perceived that the various content areas of statewide professional development were effective in improving the abilities of CTE teachers in their programs.

Table 7
Administrator Responses Indicating Effectiveness of
Statewide Professional Development to Improve Teacher Abilities

Administrators' Perception of Teachers' Ability to:	Ineffective		Neutral		Effective	
	N	%	N	%	N	%
Align & integrate curriculum	11	6.2%	22	12.5%	143	81.2%
Improve student performance	13	7.4%	23	13.1%	140	79.5%
Increase the rigor of CTE courses	8	4.6%	30	17.1%	137	78.3%
Use industry standards for assessments	10	5.8%	33	19.1%	130	75.2%
Meet the needs of special populations	11	6.3%	34	19.3%	131	74.4%
Create & sustain education partnerships	6	3.4%	47	26.7%	123	69.9%
Develop meaningful work-based learning experiences	7	4.0%	47	26.9%	121	69.2%
Develop business & industry partnerships	12	6.8%	63	35.8%	101	57.4%
Provide effective student interventions	14	8.0%	61	34.9%	100	57.2%
Identify struggling learners	16	9.1%	61	34.7%	99	56.3%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Teachers were asked to assess the effectiveness of statewide professional development in improving teacher skills. Table 8 shows the distribution of responses for the teacher survey. The majority of teachers (ranging between 54% and 74%) also felt that all content areas were either mostly or very effective.

In sum, both teachers and administrators found the professional development activities to be effective in Improving Student Performance, Increasing the Rigor of CTE Courses, and Aligning and Integrating Curriculum. Both also rated the activities that focused on Developing Business & Industry Partnerships and Providing Effective Student Interventions.

Table 8
Teacher Responses Indicating Effectiveness of
Statewide Professional Development to Improve Teacher Abilities

Ability	Ineffective		Neutral		Effective	
	N	%	N	%	N	%
Assist in improving student performance	45	4.6%	211	21.6%	720	73.8%
Assist in increasing the rigor of CTE courses	59	6.1%	235	24.1%	681	69.8%
Assist in developing meaningful work-based learning experiences	52	5.3%	249	25.5%	674	69.2%
Assist with curriculum alignment and integration	62	6.4%	256	26.2%	658	67.4%
Assist in the use of industry standards for assessments	47	4.9%	278	28.5%	649	66.6%
Create and sustain education partnerships	78	8.0%	325	33.3%	573	58.7%
Assist in identifying struggling learners	79	8.1%	361	37.0%	535	54.9%
Assist with effective student interventions	78	8.0%	363	37.2%	534	54.8%
Assist in developing business & industry partnerships	95	9.8%	358	36.7%	522	53.5%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Teachers were also asked to identify those professional development activities that they had participated in above the local or district level. Table 9 shows the distribution of those responses. It should be noted that teachers could select as many choices as were pertinent to their situation.

As the data indicate, the highest participation rate was in professional development activities related to the use of technology or technical knowledge within the field. This may be due to the perception by teachers that the rapid changes in technology and industry require them to keep up to date. Demographic change has also caused a need for professional development over the years. During site visits, some of the more tenured teachers shared how 30 years ago, classroom management topped the list due to the changing culture of students. This topic remains pressing as evidenced by classroom management tying for third with meeting the needs of special populations. According to many teacher educators, this topic will continue to be in demand, because teacher preparation programs seldom have the time to teach classroom management to the level that teachers need.

Table 9
 Distribution of CTE Teacher Survey Responses Identifying the Professional
 Development Activities in Which They Had Participated Above the Local Level

Professional Development Topic	Percent Participating (In Rank Order)
Use of Technology to Enhance Instruction	52.7%
Technical Knowledge and Skills in Field	46.4%
Meeting the Needs of Special Populations	45.2%
Classroom Management	45.1%
Learning Styles	43.6%
Curriculum Alignment	41.5%
Integration Strategies	36.9%
Cultural Diversity	33.8%
Student Assessment	32.0%
Differentiated Instruction	26.4%
Limited English Proficiency	23.0%
Use and Analysis of Data	21.5%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Note: n = 976.

The quality of statewide professional development training was also a topic discussed at the TETN session. Specific comments related to CTE professional development issues are listed in Table 10 and are arranged in priority order based on the number of session participants making related comments. Interdisciplinary Professional Development was considered to be integral to all CTE professional development. For example, during a discussion about curriculum materials obtained from some of the Educational Excellence grant holders, the perspective was shared that core and CTE teachers could benefit from a curriculum “swap-shop” at their respective conferences. During the session it became apparent that the perceived or real separation between core and CTE programs was no longer acceptable and that the integration of core and CTE should be a focal point for future trainings across both programs.

Table 10
TETN Session Participant Recommendations for CTE Professional Development

TETN Session Participant Statements	Participants with Similar Statements
Interdisciplinary planning time and cross training needed between CTE and core subject teachers.	25
Principals must be shown the need for time for staff development.	22
Need more training to teach leadership development and entrepreneurship.	18
Teachers should be trained to teach skill applications.	15
Cross-training needed for special education and CTE teachers.	12
Schools need CTE training for all teachers and counselors.	12
Book studies should be developed and offered to CTE staff on teaching strategies.	11
More training is needed on how to modify lessons, tests, assignments, and activities.	10
Every professional CTE organization should offer professional development.	10
CTE should develop professional learning communities.	10
Include administrator knowledge of CTE and Texas Essential Knowledge and Skills (TEKS)	9
New teacher professional development needed for CTSOs.	8
Professional development needed in LEP and ESL strategies.	7
Need more on-line or distance learning professional development opportunities.	7
Need training on data disaggregation for CTE staff.	5
Need training for specific reading and writing strategies for CTE teachers.	4
Post-secondary schools should provide more training on content rather than recruiting.	4

Source: TETN session participant interviews, Texas Education Agency, 2006.

Quality and Effectiveness of Career and Technology Student Organizations (CTSOs)

The United States Department of Education (USDOE) has endorsed CTSOs as a critical component of an effective CTE program. The USDOE allows states to use federal Carl D. Perkins funds to provide leadership and support for the CTE student organizations (§ 124).

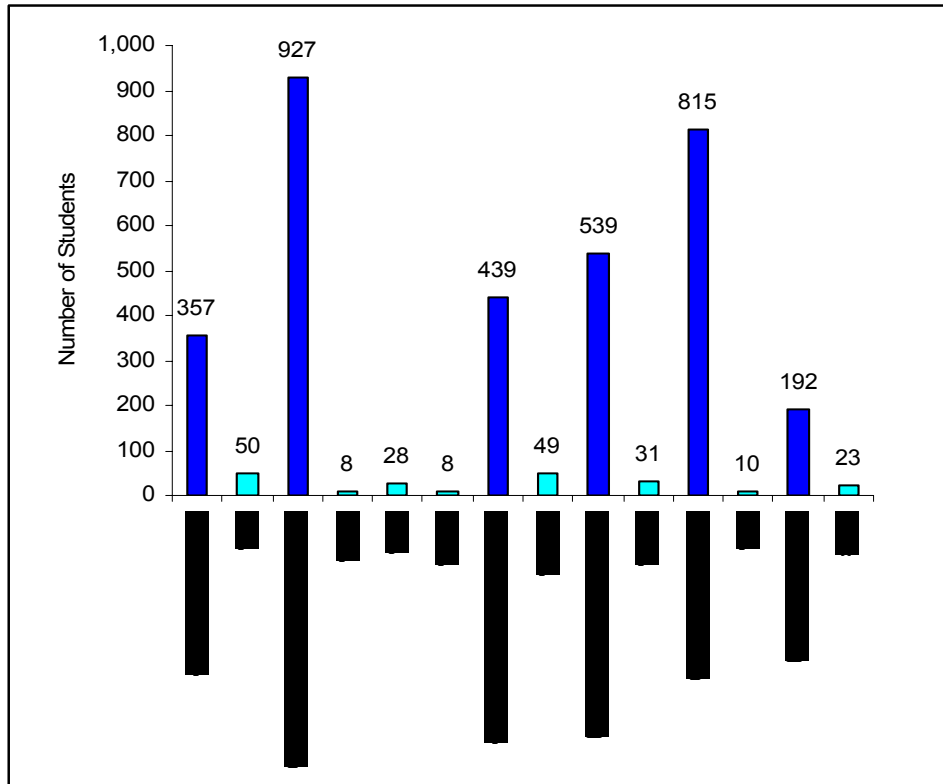
The state charters for the CTSOs are held by TEA, which has the responsibility for administrative leadership and fiscal management of each organization, as well as integration of CTSO activities into the appropriate CTE program. TEA sponsors the following CTSOs:

- BPA – Business Professionals of America
- DECA – Distributive Education Clubs of America (for Marketing Education students),
- FBLA – Future Business Leaders of America
- FCCLA – Family, Career and Community Leaders of America,
- FFA – Future Farmers of America
- HOSA – Health Occupations Students of America
- Skills USA – for Trade and Industrial Education students
- TSA – Technology Student Association.

Statements made during the TETN session indicate that the stakeholders see the role of CTSOs as providing real-life skills related to their particular CTE course of study. Student involvement, particularly those students with special needs, is a priority. The student survey asked respondents to identify which CTSO(s) they were members of, and those responses were compared to the courses in which they were enrolled. Figure 1, shows the respondents' stated CTE course enrollment and the corresponding numbers who indicated membership in the CTSO. The results

of this comparison indicate low levels of participation in CTSOs. Among students who reported they were members of a CTSO, most said they belong to the FFA and/or FCCLA.

Figure 1
CTE Course of Study Enrollment v. Corresponding CTSO Membership



Source: CTE Student Survey, Texas Education Agency, 2006.

It should be noted that these data are self-reported by students and do not take into account the fact that some CTE programs may pay dues for the student in order to maintain full membership status. However, it is reasonable to assume that if students report that they are not members of the CTSO, it is likely that they are not active in that organization.

All of the student respondents answered survey items dealing with their perceptions of the effectiveness of the CTSO(s) in certain areas. Table 11 shows the distribution of responses to these three survey items. Although the majority of student survey respondents indicated that they were not members of a CTSO, most students (58% or more) reported that CTSO(s) were effective in helping them decide about their future and helping them with employability skills. Nearly half (48%) reported that CTSO(s) were also relevant to their goals.

Table 11
Distribution of Student Responses Regarding Satisfaction with Various Characteristics of CTSOs

CTSO Characteristic	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	N	%	N	%	N	%	N	%	N	%	N	%
CTSO Help in Deciding About My Future	.00	.00	105	5.0%	181	8.7%	560	26.9%	891	42.8%	344	16.5%
CTSO Help With Employability Skills	.00	.00	96	4.6%	151	7.3%	511	24.6%	917	44.1%	406	19.5%
CTSO Activities are Relevant to My Goals	128	6.2%	148	7.1%	164	7.9%	639	30.7%	626	30.1%	376	18.1%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Teachers and administrators were asked a number of questions regarding the availability and effectiveness of CTSOs. In their survey, 46% of administrators stated that they did use some Perkins funds to support CTSOs. It should be noted, however, that the vast majority (92%) of those responding to the administrator survey said that their school did offer students the opportunity to participate in CTSO activities.

Administrators and teachers were asked to rate their perception of the effectiveness of CTSOs in developing student leadership skills, keeping students engaged in school, improving students' technical skills, and improving students' academic achievement. Tables 12 through 15 show the administrators' responses and Tables 16 through 19 show the teachers' responses. The most notable finding is that about half of both groups responded to the questions about CTSOs with "Not Applicable", indicating that the majority of listed CTSOs are not offered at their school. FFA is the most prevalent, which corresponds to the students' responses, and is rated most often by respondents as being effective across all four dimensions. Knowing the history of these CTSOs (e.g., How long they have been in existence? Is their membership increasing or decreasing?) would help in assessing whether resources would be better spent supporting more effective CTSOs and in intervening to support struggling CTSOs that may be the only option for a particular course of study.

Table 12
Distribution of Administrator Responses Regarding CTSO Effectiveness
in Developing Student Leadership Skills

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	26	11.0%	2	.8%	3	1.3%	10	4.2%	38	16.0%	158	66.7%
BPA	107	49.1%	3	1.4%	5	2.3%	16	7.3%	31	14.2%	56	25.7%
FBLA	136	66.3%	5	2.4%	2	1.0%	16	7.8%	17	18.3%	29	14.1%
FCCLA	47	20.9%	4	1.8%	4	1.8%	29	12.9%	52	23.1%	89	39.6%
DECA	102	47.9%	2	.9%	1	.5%	18	8.5%	28	13.1%	62	29.1%
HOSA	103	48.6%	3	1.4%	.00	.00	14	6.6%	17	8.0%	75	35.4%
SKILLS	100	45.9%	2	.9%	4	1.8%	14	6.4%	19	8.7%	79	36.2%
TSA	134	66.0%	2	1.0%	2	1.0%	15	7.4%	25	12.3%	25	12.3%

Source: CTE Student Survey, Texas Education Agency, 2006.

Table 13
Distribution of Administrator Responses Regarding CTSO Effectiveness
in Keeping Students Engaged in School

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	25	10.6%			1	.4%	11	4.7%	34	14.5%	164	69.8%
BPA	107	50.0%	3	1.4%	3	1.4%	14	6.5%	34	15.9%	53	24.8%
FBLA	133	65.8%	3	1.5%	2	1.0%	14	6.9%	21	10.4%	29	14.4%
FCCLA	46	20.7%	4	1.8%	4	1.8%	23	10.4%	53	23.9%	92	41.4%
DECA	102	47.9%	1	.5%	2	.9%	12	5.6%	30	14.1%	66	31.0%
HOSA	102	48.6%	1	.5%			14	6.7%	23	11.0%	70	33.3%
SKILLS	96	44.4%	1	.5%	3	1.4%	12	5.6%	21	9.7%	83	38.4%
TSA	131	65.5%	2	1.0%	1	.5%	14	7.0%	20	10.0%	32	16.0%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Table 14

Distribution of Administrator Responses Regarding CTSO Effectiveness
in Improving Students' Technical Skills

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	25	10.8%			3	1.3%	20	8.6%	56	24.1%	128	55.2%
BPA	107	50.0%	2	.9%	1	.5%	15	7.0%	26	12.1%	63	29.4%
FBLA	136	67.3%	3	1.5%	1	.5%	11	5.4%	18	8.9%	33	16.3%
FCCLA	47	21.2%	4	1.8%	1	.5%	36	16.2%	62	27.9%	72	32.4%
DECA	103	48.6%	1	.5%	1	.5%	9	4.2%	40	18.9%	58	27.4%
HOSA	103	49.3%					15	7.2%	21	10.0%	70	33.5%
SKILLS	96	45.1%			1	.5%	10	4.7%	19	8.9%	87	40.8%
TSA	133	66.2%	1	.5%	1	.5%	15	7.5%	16	8.0%	35	17.4%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Table 15

Distribution of Administrator Responses Regarding CTSO Effectiveness
in Improving Students' Academic Achievement

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	25	10.6%			3	1.3%	20	8.5%	71	30.2%	116	49.4%
BPA	106	49.8%	2	.9%	3	1.4%	16	7.5%	33	15.5%	53	24.9%
FBLA	133	65.5%	3	1.5%	1	.5%	15	7.4%	23	11.3%	28	13.8%
FCCLA	45	20.3%	3	1.4%	3	1.4%	37	16.7%	61	27.5%	73	32.9%
DECA	102	48.1%	1	.5%	1	.5%	15	7.1%	42	19.8%	51	24.1%
HOSA	102	48.8%	1	.5%			15	7.2%	28	13.4%	63	30.1%
SKILLS	95	44.2%	1	.5%	2	.9%	18	8.4%	37	17.2%	62	28.8%
TSA	132	65.3%	1	.5%	2	1.0%	15	7.4%	22	10.9%	30	14.9%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Table 16
Distribution of Teacher Responses Regarding CTSO Effectiveness in
Developing Student Leadership Skills

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	529	54.9%	2	.2%	3	.3%	90	9.3%	72	7.5%	268	27.8%
BPA	554	57.4%	4	.4%	7	.7%	105	10.9%	102	10.6%	193	20.0%
FBLA	685	71.1%	2	.2%	3	.3%	115	11.9%	70	7.3%	89	9.2%
FCCLA	561	58.2%	4	.4%	8	.8%	117	12.1%	102	10.6%	172	17.8%
DECA	623	64.4%	4	.4%	5	.5%	103	10.7%	87	9.0%	145	15.0%
HOSA	624	64.7%	3	.3%	5	.5%	114	11.8%	71	7.4%	147	15.2%
SKILLS	575	59.2%	4	.4%	7	.7%	107	11.0%	94	9.7%	184	18.9%
TSA	693	72.0%	3	.3%	2	.2%	129	13.4%	54	5.6%	82	8.5%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Table 17
Distribution of Teacher Responses Regarding CTSO Effectiveness in
Keeping Students Engaged in School

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	509	52.7%	1	.1%	2	.2%	87	9.0%	84	8.7%	282	29.2%
BPA	543	56.3%	4	.4%	6	.6%	115	11.9%	103	10.7%	193	20.0%
FBLA	684	70.9%	3	.3%	4	.4%	113	11.7%	65	6.7%	96	9.9%
FCCLA	553	57.2%	3	.3%	6	.6%	118	12.2%	110	11.4%	177	18.3%
DECA	616	63.7%	2	.2%	10	1.0%	102	10.5%	84	8.7%	153	15.8%
HOSA	615	63.9%	2	.2%	6	.6%	111	11.5%	77	8.0%	151	15.7%
SKILLS	571	58.9%	3	.3%	9	.9%	114	11.8%	92	9.5%	180	18.6%
TSA	692	71.8%	3	.3%	3	.3%	135	14.0%	49	5.1%	82	8.5%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Table 18
Distribution of Teacher Responses Regarding CTSO Effectiveness in
Improving Student Technical Skills

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	519	53.8%	1	.1%	4	.4%	99	10.3%	92	9.5%	250	25.9%
BPA	551	57.1%	4	.4%	4	.4%	108	11.2%	93	9.6%	205	21.2%
FBLA	686	71.0%	2	.2%	4	.4%	115	11.9%	61	6.3%	98	10.1%
FCCLA	563	58.3%	4	.4%	7	.7%	130	13.5%	100	10.4%	162	16.8%
DECA	613	63.5%	3	.3%	6	.6%	113	11.7%	77	8.0%	154	15.9%
HOSA	620	64.4%	2	.2%	5	.5%	113	11.7%	68	7.1%	155	16.1%
SKILLS	573	59.0%	4	.4%	8	.8%	111	11.4%	69	7.1%	206	21.2%
TSA	692	71.8%	4	.4%	4	.4%	127	13.2%	43	4.5%	94	9.8%

Source: CTE Teacher Survey Source: CTE Teacher Survey, Texas Education Agency, 2006.

Table 19
Distribution of Teacher Responses Regarding CTSO Effectiveness in
Improving Student Academic Achievement

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
FFA	515	53.5%	1	.1%	3	.3%	102	10.6%	123	12.8%	218	22.7%
BPA	548	56.8%	3	.3%	2	.2%	115	11.9%	107	11.1%	189	19.6%
FBLA	677	70.2%	2	.2%	2	.2%	122	12.6%	66	6.8%	96	9.9%
FCCLA	550	56.9%	3	.3%	6	.6%	134	13.9%	122	12.6%	152	15.7%
DECA	616	63.7%	2	.2%	6	.6%	116	12.0%	79	8.2%	148	15.3%
HOSA	614	63.9%	2	.2%	5	.5%	123	12.8%	78	8.1%	139	14.5%
SKILLS	567	58.6%	4	.4%	7	.7%	125	12.9%	95	9.8%	170	17.6%
TSA	688	71.4%	3	.3%	1	.1%	140	14.5%	47	4.9%	85	8.8%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Quality and Effectiveness of CTE Special Projects

Project Lead the Way (PLTW) is a rigorous pre-engineering program developed by The National Alliance for Pre-Engineering Education. The University of Houston is the Texas Affiliate University for PLTW programs. The Center for Technology Literacy at the University of Houston provides the required professional development, counselor training, technical support and resources to districts that desire to implement the PLTW pre-engineering program. PLTW helps students learn the knowledge and skills they need to excel in high tech engineering fields. Students participating in PLTW have the ability to enter and complete post-secondary studies in science, math, engineering, and technology.

TETN participants stated that more information needs to be disseminated about the PLTW program due to low awareness of the program. They suggested informing math and science teachers in particular because their subject areas are most relevant to the program.

Advanced Technical Credit (ATC) is a program by which high school students can receive credit at participating community colleges across Texas for taking certain enhanced technical courses during high school. This credit is granted through alignment of secondary CTE classes with post-secondary technical programs. This alignment process is referred to as course articulation and aligned courses are determined through articulation agreements between secondary and post-secondary institutions. The statewide articulated courses and their equivalent college courses are listed in the ATC Course Crosswalk which can be accessed via the TEA website. All participating community colleges have agreed to offer students credit for these courses, provided that the college offers the course and the student meets certain criteria. For a high school to offer an ATC course to its students, the teacher of the course must meet the ATC teacher requirements, complete ATC training, and teach the high school course so that it is enhanced to meet the content of the equivalent college course. ATC courses are only offered in technical or workforce areas - courses in academic areas such as English or history are not offered as ATC courses.

The ATC accountability system and online database is a special project established by TEA to provide information teachers can use regarding courses approved for credit, professional development opportunities, certification requirements and records, and other information relevant to the ATC program. CTE administrators were asked to rank their level of agreement with the following statement regarding the ATC system: "CTE teachers make use of the ATC accountability system and online database." Table 20 shows the distribution of responses to this statement. As the responses indicate, 51.4% of the administrators responding felt that their teachers did, in fact, make use of the ATC accountability system. Only 11% stated that they disagreed or strongly disagreed with the statement.

Table 20
Distribution of Administrator Responses Regarding
Teacher Use of the ATC Accountability System

Quality of Articulation Agreements	Response Rate	
	N	%
Poor	1	.4%
Below Standard	3	1.3%
Meets Minimum Standard	79	34.3%
Above Minimum Standard	92	40.0%
Outstanding	55	23.9%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

As a part of the CTE program evaluation, administrators were asked to rate the quality of ATC articulation agreements in their district (see Table 21). As can be seen, most administrators (64%) reported that the quality of articulation agreements was “above minimum standard” or “outstanding”. This is in line with the responses administrators made to the survey item regarding the use of the ATC accountability system, which may be helpful in developing and managing articulation agreements.

Table 21
Program Evaluation Ratings Regarding the
Quality of District Articulation Agreements

CTE teachers make use of the ATC accountability system and online database.	Response Rate	
	N	%
Strongly Disagree	4	2.3%
Disagree	15	8.7%
Neutral	65	37.6%
Agree	72	41.6%
Strongly Agree	17	9.8%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Special Populations Training and Resource Education Center (SPACE) is a TEA grant funded project. Its mission is to provide access to CTE and special education-related multimedia information (books, curriculum materials, videos, online courses) to teachers, parents, and education professionals throughout Texas and nationally.

Administrators were asked about the extent to which SPACE was used in their districts to help meet the needs of special population students. Table 22, provides the distribution of administrator responses to this survey item. As the table indicates, the majority of administrators responded “Neutral” to the SPACE survey item, likely because a “not applicable” option was not

provided. The focus group discussion and interviews confirmed that many administrators were unaware of the availability of the SPACE resources.

Table 22
Distribution of Administrator Responses Regarding Their
District's Use of SPACE

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	Count	%	Count	%	Count	%	Count	%	Count	%
Admin. Response	4	2.3%	26	15.0%	91	52.6%	46	26.6%	6	3.5%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Note: Results are response to the survey statement: "SPACE is used to provide resources and technical assistance to meet the needs of special populations at my school."

Quality and Effectiveness of CTE Educational Excellence Grants

Educational Excellence Grants are offered through TEA to institutions wishing to develop and provide curriculum materials and professional development activities for CTE programs. The objectives of these grants are to:

- develop rigorous academic and technical curriculum to increase student achievement;
- integrate standards for reading/writing, math, science and social studies into curriculum so students master challenging core academic skills while learning standards-based workplace competencies;
- develop relevant curriculum that prepares students for post-secondary education and high-skill, high wage, high-demand careers;
- develop curriculum resources supporting career pathways that prepare students for career success;
- develop curriculum-based rubrics and assessments that promote and measure student achievement;
- develop career pathway models representative of rigorous academic and technical secondary courses that prepare students for successful completion of state core academic standards and more advanced post-secondary coursework related to their career area of interest; and
- provide professional development to increase effectiveness of curriculum implementation.

The institutions currently holding the contracts for curriculum and professional development are:

Agricultural Science and Technology: Texas A&M University
 Trade and Industrial Education: Texas A&M University
 Business Education: University of Houston
 Technology Education: University of Houston
 Health Science & Technology: University of North Texas
 Family and Consumer Sciences: Texas Tech University

Both Administrators and teachers were asked about the effectiveness of the grant recipients in providing curriculum materials as well as rubrics and assessments. Tables 23 through 26, show the distribution of responses to these survey items. As the data show, administrators and teachers had very different perceptions regarding the effect of the Educational Excellence grants. Overall, a higher proportion of administrators than teachers indicated that Educational Excellence grants effectively provided relevant CTE curriculum materials and CTE rubrics and assessments. It is unclear why administrators and teachers would have such widely divergent opinions in this regard. Anecdotally, some TETN participants suggested that curriculum materials would be more useful if the institutions would focus their training materials on content rather than recruitment. This is a finding that merits further research.

Table 23
Distribution of Administrator Responses Regarding the Effectiveness of Educational Excellence Grant Recipients in Providing Relevant CTE Curriculum Materials

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Tx A&M Ag	31	13.1%	1	.4%	3	1.3%	24	10.1%	62	26.2%	116	48.9%
Tx A&M T&I	71	30.7%	3	1.3%	2	.9%	47	20.3%	50	21.6%	58	25.1%
U of H Bus.	72	31.4%	3	1.3%	5	2.2%	59	25.8%	52	22.7%	38	16.6%
U of H Tech	85	37.0%	3	1.3%	4	1.7%	62	27.0%	44	19.1%	32	13.9%
UNT Health	86	37.2%	2	.9%	1	.4%	41	17.7%	51	22.1%	50	21.6%
TTU FACS	43	18.3%	3	1.3%			37	15.7%	53	22.6%	99	42.1%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Table 24
Distribution of Administrator Responses Regarding the Effectiveness of Educational Excellence Grant Recipients in Providing Relevant CTE Rubrics and Assessments

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Tx A&M Ag	41	17.2%	1	.4%	5	2.1%	57	23.8%	62	25.9%	73	30.5%
Tx A&M T&I	76	32.9%	2	.9%	3	1.3%	70	30.3%	38	16.5%	42	18.2%
U of H Bus.	75	32.3%	3	1.3%	5	2.2%	73	31.5%	43	18.5%	33	14.2%
U of H Tech	91	39.1%	3	1.3%	5	2.1%	72	30.9%	33	14.2%	29	12.4%
UNT Health	85	37.1%	2	.9%	2	.9%	66	28.8%	35	15.3%	39	17.0%
TTU FACS	44	18.8%	2	.9%	2	.9%	69	29.5%	53	22.6%	64	27.4%

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Table 25
Distribution of Teacher Responses Regarding the Effectiveness of
Educational Excellence Grant Recipients in Providing
Relevant CTE Curriculum Materials

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Tx A&M Ag	550	56.6%	17	1.8%	8	.8%	149	15.3%	93	9.6%	154	15.9%
Tx A&M T&I	563	57.9%	25	2.6%	12	1.2%	167	17.2%	87	8.9%	119	12.2%
U of H Bus.	574	59.2%	25	2.6%	7	.7%	197	20.3%	80	8.3%	86	8.9%
U of H Tech	589	60.7%	25	2.6%	12	1.2%	194	20.0%	75	7.7%	75	7.7%
UNT Health	633	65.2%	23	2.4%	6	.6%	169	17.4%	53	5.5%	87	9.0%
TTU FACS	538	55.3%	20	2.1%	10	1.0%	160	16.5%	79	8.1%	165	17.0%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Table 26
Distribution of Teacher Responses Regarding the Effectiveness of
Educational Excellence Grant Recipients in Providing
Relevant CTE Rubrics and Assessments

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Tx A&M Ag	569	58.6%	19	2.0%	11	1.1%	171	17.6%	82	8.4%	119	12.3%
Tx A&M T&I	579	59.4%	26	2.7%	11	1.1%	186	19.1%	72	7.4%	100	10.3%
U of H Bus.	581	59.9%	28	2.9%	10	1.0%	212	21.9%	61	6.3%	78	8.0%
U of H Tech	596	61.4%	24	2.5%	13	1.3%	211	21.8%	57	5.9%	69	7.1%
UNT Health	635	65.4%	23	2.4%	8	.8%	185	19.1%	46	4.7%	74	7.6%
TTU FACS	545	56.1%	23	2.4%	14	1.4%	189	19.5%	78	8.0%	122	12.6%

Source: CTE Teacher Survey, Texas Education Agency, 2006.

Required and Permissible Uses of Perkins Funds by CTE Programs

Administrators were asked about the percentage of Perkins funds used for various allowable CTE expenditures. Tables 27 and 28 show the average percentage of Perkins funds used for these different purposes. The Perkins fund data show that, under “required” uses, administrators generally allocate the largest proportion of funds (approximately 20%) to improving and modernizing CTE programs, expanding the use of technology, and strengthening academic and technical skills of students. For the “permissible” uses of Perkins funds, the highest proportion (approximately 20%) is generally allocated to providing career guidance and academic counseling, and purchasing or upgrading equipment.

TETN session participants recommended that Perkins funds be used also to hire classroom aides or CTE curriculum specialists, and for cross-training between core, CTE, and special education teachers.

Table 27
Average Percent of Perkins Funds Allocated by
Administrators for Required Uses

	N	Mean	Std Deviation
Strengthen academic and technical skills of students	201	18.2%	23.8
Provide students experience in all aspects of industry	184	9.4%	12.9
Develop and expand the use of technology in CTE	194	19.5%	23.34
Provide professional development programs	199	12.2%	16.29
Develop and implement program evaluations	177	5.3%	9.0
Improve, expand, and modernize CTE programs	202	25.7%	26.6
Provide services and activities of sufficient size and scope	179	9.8%	15.1
Link secondary and postsecondary CTE	177	5.8%	9.4

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Table 28
Average Percent of Perkins Funds Allocated by
Administrators for Permissible Uses

	N	Mean	Std Deviation
Involve parents, business, etc. in planning CTE programs	167	5.6%	14
Provide career guidance and academic counseling	198	21.3%	29.88
Provide work-related experiences to students	167	7.9%	18.35
Provide programs for special populations	168	5.5%	10.0
Develop local education and business partnerships	162	2.6%	8
Assist Career and Technology student organizations	166	4.9%	11
Provide mentoring and support services	157	2.5%	9
Lease, purchase, or upgrade instructional equipment	183	18.4%	26.10
Assist with CTE teacher preparation programs	158	2.3%	9
Improve or develop new CTE courses	174	9.3%	16.6
Provide support for family and consumer science programs	174	6.9%	14
Provide CTE programs for adults and school dropouts	156	1.4%	8
Provide assistance to students in finding jobs	161	2.1%	8
Support nontraditional training and employment	162	2.2%	8
Support other CTE activities consistent with Perkins law	162	7.0%	17.1

Source: CTE Administrator Survey, Texas Education Agency, 2006.

Relationship between CTE Program Participation and Student Achievement Outcomes

To help determine the relationship between size, scope and quality of CTE programs and the attainment of academic skills and increase in graduation rates, the study analyzed numerous data sets related to student and school performance from TAKS data files, AEIS reports, and PEIMS data files maintained by TEA. Findings were based on analyses of the following outcome measures:

- student performance on the reading and math portions of the TAKS;
- student graduation rates; and
- the Higher Education Readiness Component (HERC).

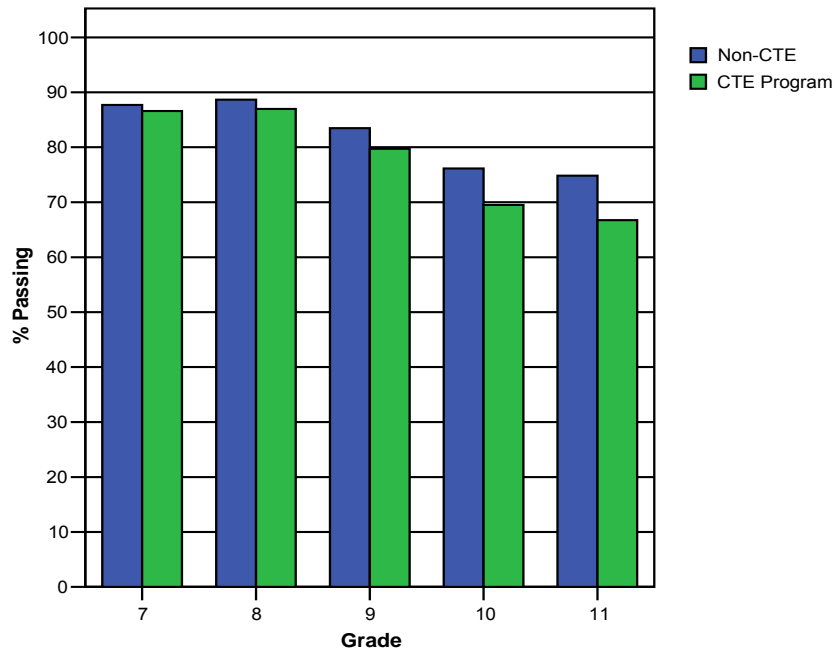
TAKS Results

The tables and data on the following pages show comparisons between CTE students and non-CTE students statewide on various performance measures. One of the most important measures of student achievement in Texas is the TAKS test, administered each spring to students in Grades 3 through 11. In Grades 3, 5, 8, and 11, the assessment serves as a gateway to the next grade with the Grade 11 TAKS serving as a requirement for graduation. TAKS results in all analyses are derived from the first spring test administration of each year. Note that Grade 12 students who are retaking the test are excluded from analysis. Full TAKS result tables are included in Appendix F.

Reading/ ELA TAKS Results. A reading TAKS is given in Grades 3 through 9. In Grades 10 and 11 the test is a combined English Language Arts (ELA) test that includes both reading and writing. The test has been administered since 2003.

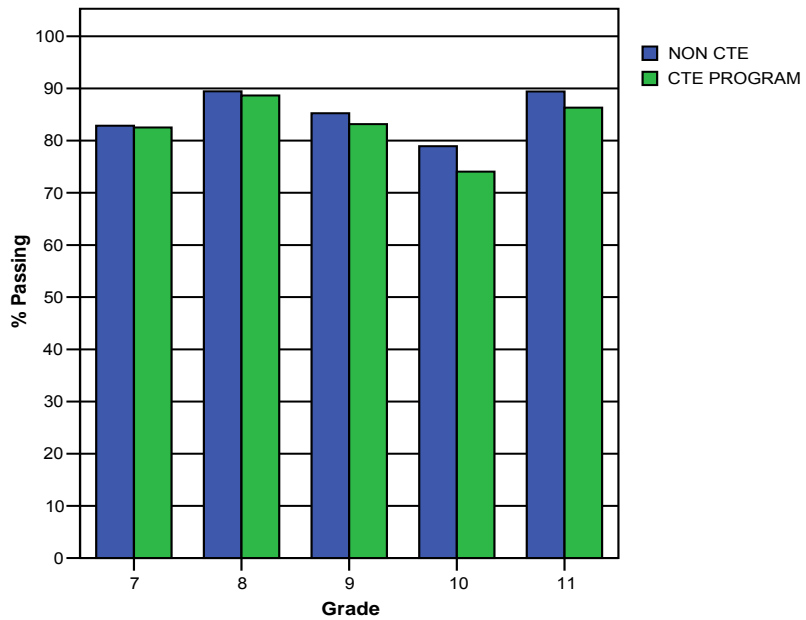
CTE students, in general, have historically lagged behind non-CTE students on this test, but the disparity seems to be decreasing. Typically, the gap between CTE and non-CTE students widens as they reach higher grade levels. However, since the institution of the Grade 11 TAKS requirement for graduation in 2003, the gap is virtually disappearing. Further research is necessary to explore the reasons for this positive change, but a possible explanation is that the test serves as a strong motivator for students and teachers to focus on core academic skills (see Figures 2 through 5).

Figure 2
2003 Reading TAKS



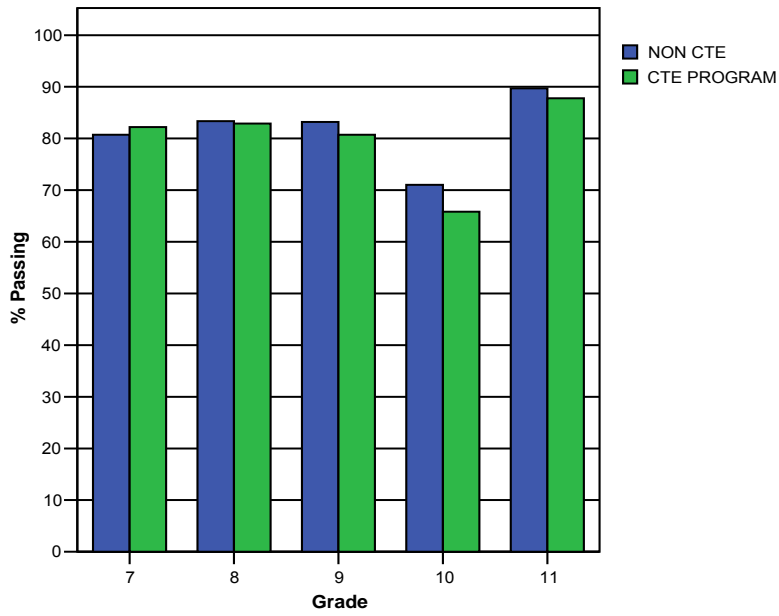
Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Figure 3
2004 Reading TAKS



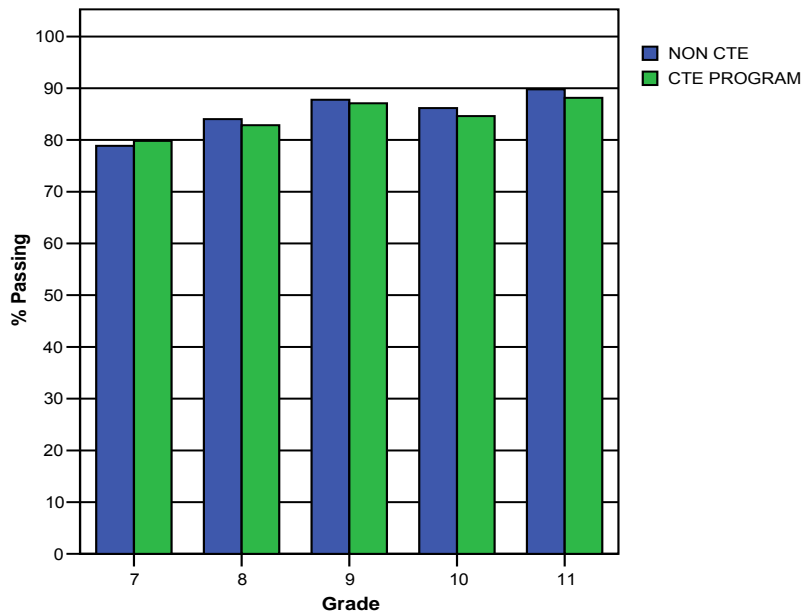
Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Figure 4
2005 Reading TAKS



Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Figure 5
2006 Reading TAKS

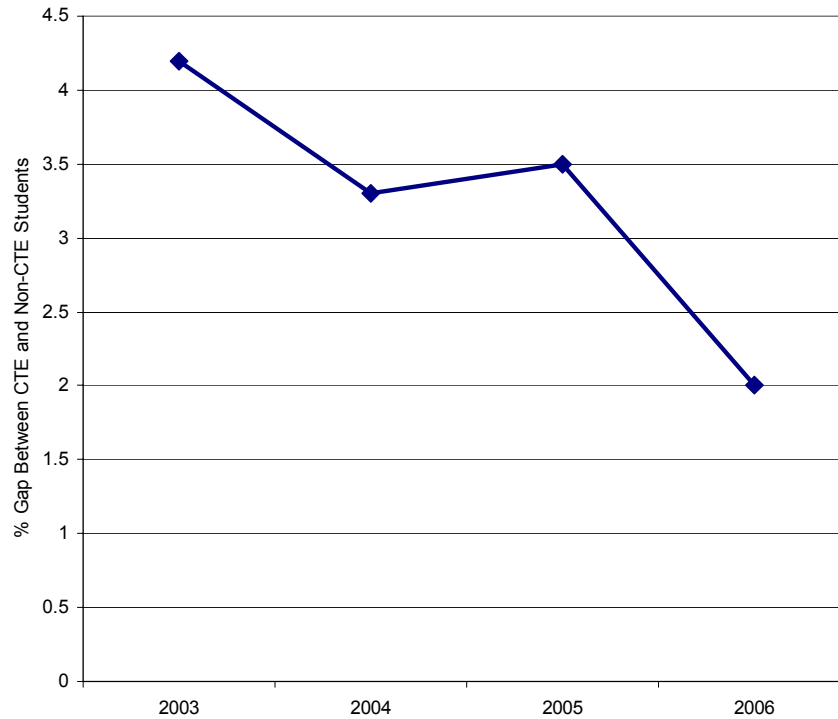


Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

The graphs demonstrate that the gap between CTE and non-CTE students in reading/ELA is closing and that higher percentages of students are passing the test even as standards are increasing. Overall, from 2003 to 2006 the gap between CTE and non-CTE students declined from 4.2% to 2.0%, a closure of 2.2% (see Figure 6).

Figure 6

CTE V Non-CTE Reading TAKS Percent Passing Gap



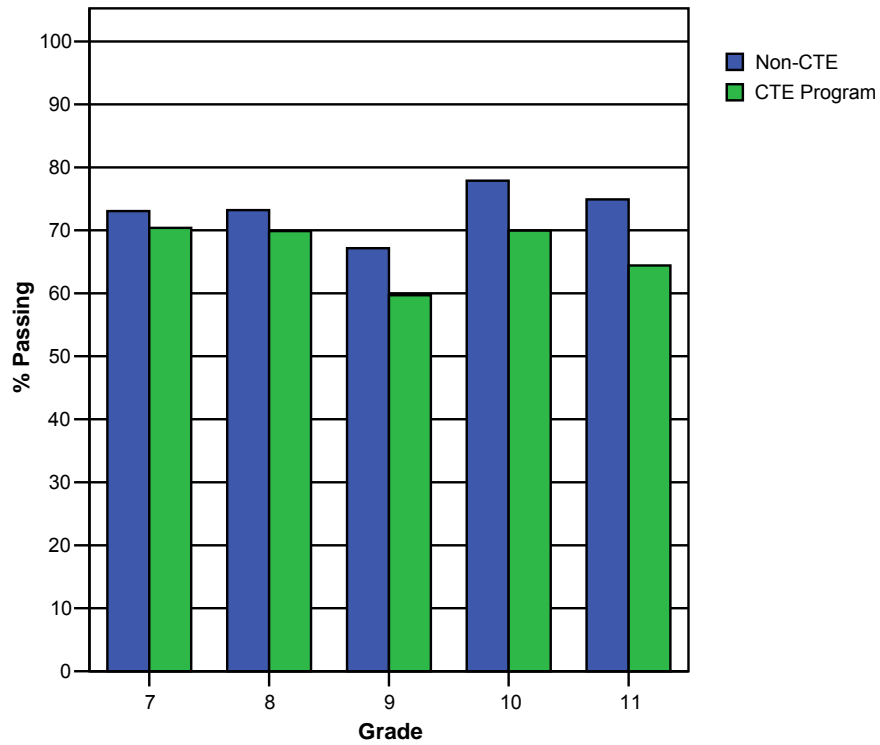
Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Mathematics TAKS Results. A mathematics TAKS test is administered at Grade 3 through Grade 11. The results of the math tests are typically lower than those of the reading tests. This is the case with the gap between CTE and non-CTE students. As with reading, CTE students, as a group, have typically performed at a lower level than non-CTE students. However, unlike reading, the gap between the two groups does not appear to be closing.

As with the reading scores, TAKS math scores decreased as grade level increased. At the same time, the gap between CTE and non-CTE students widens. This trend in TAKS test performance is arrested at Grade 11, most likely due to the incentive of graduation.

Figure 7

2003 Math TAKS

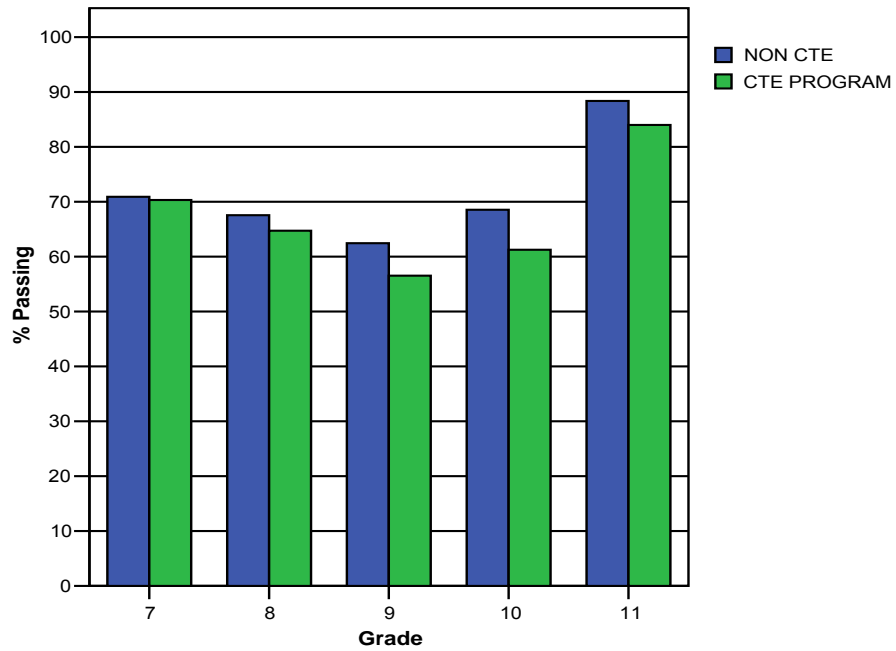


Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Figure 8 shows a marked difference in the passing rates for CTE and non-CTE students. It should be noted that 2003 was the first year for the TAKS, which may have caught some students off guard since it was a more rigorous test than the previous test that focused on basic skills.² As the next three charts show, the gap between CTE and non-CTE students closes considerably, though not to the degree it did in reading. Mathematics integration and training was one of the most often mentioned needs by CTE personnel who were interviewed or had input as a part of this study.

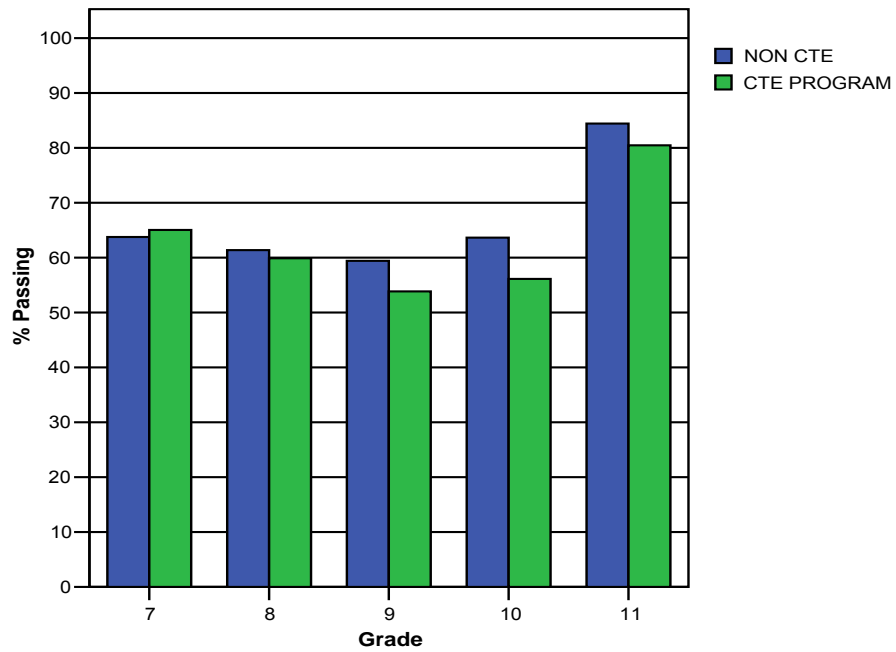
² TAKS replaced the Texas Assessment of Academic Skills (TAAS) in 2003.

Figure 8
2004 Math TAKS



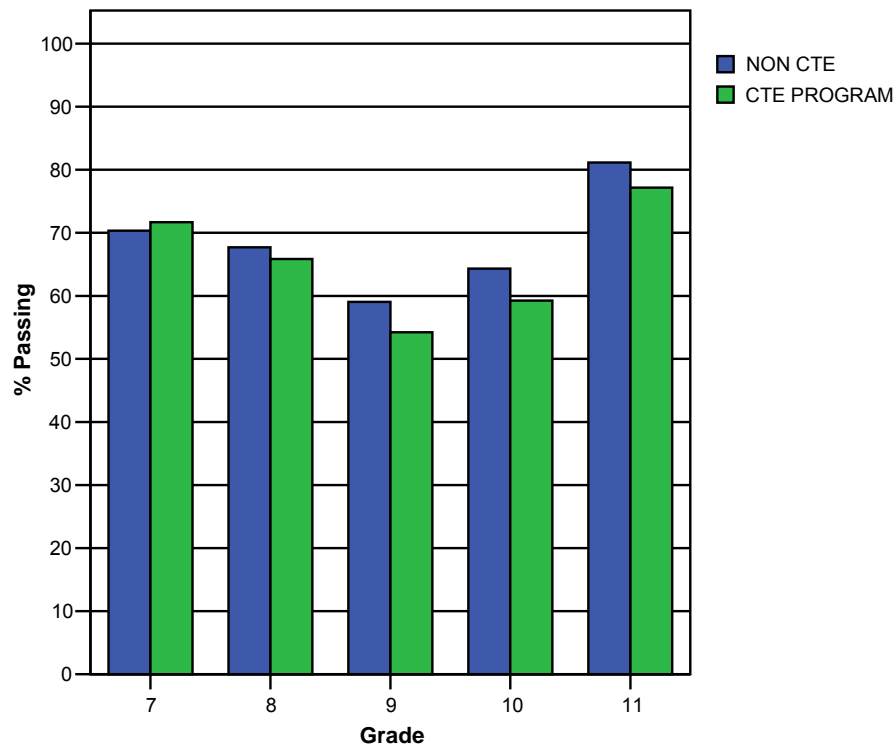
Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Figure 9
2005 Math TAKS



Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Figure 10
2006 Math TAKS



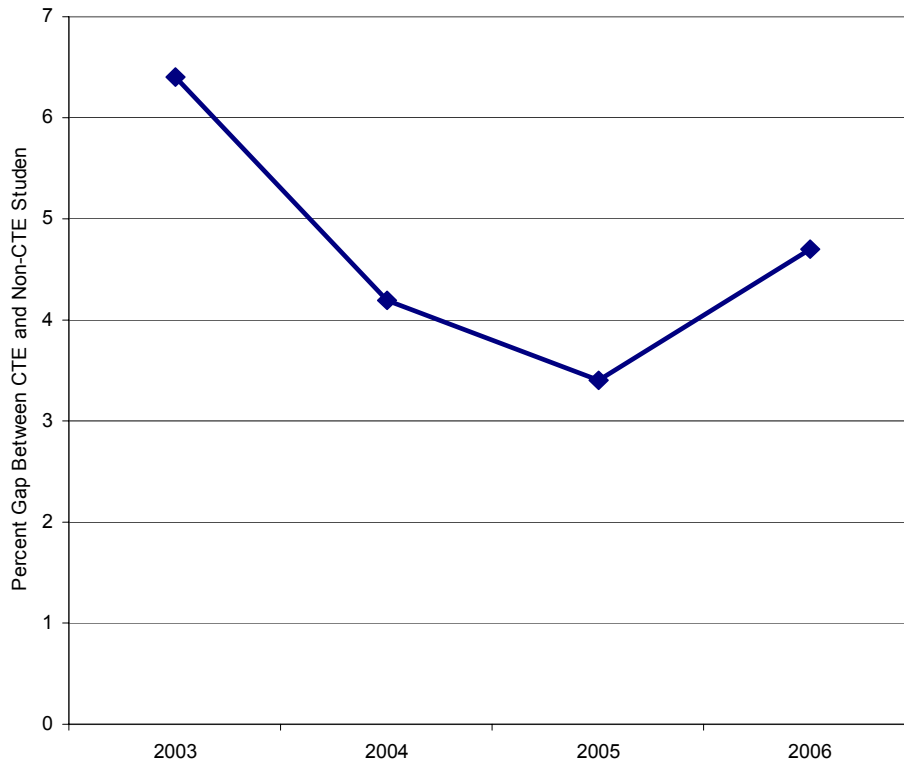
Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

As the charts indicate, the gap between CTE and non-CTE students in math TAKS performance does not appear to be closing as it does for reading. From 2003 to 2006, the gap between CTE and non-CTE students went from 6.4% to 4.7%, an overall closure of 1.7%. However, we do see the same increase at Grade 11, once again, probably due to the graduation incentive. Figure 11 shows the overall trend in the achievement gap between CTE and non-CTE students.

Another interesting trend for both math and reading is that the differences in rates passing peaks in the early high school years, suggesting that academic interventions should be targeted at those years.

Figure 11

CTE vs Non-CTE Math TAKS Percent Passing Gap



Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

TAKS Results and Type of CTE Program. The data discussed in the previous subsections show a disparity between CTE students' and non-CTE students' average TAKS scores. However, deeper investigation revealed that within the population of CTE students there is variability. The more structure students have in their program, the more likely they are to pass the TAKS. Analysis of CTE PEIMS codes from 2003 through 2006 found that in nearly every case, those students enrolled in a coherent sequence or Tech-Prep program outperformed those students who took random CTE courses as electives. Table 29 shows that the percentage of coherent sequence students is nearly the same and the percentage of Tech-Prep students is higher than the percentage of non-CTE students passing in the reading/ELA and math TAKS in 2006.

Table 29
2006 TAKS Passing Rates by CTE Program Type Code

	CTE Program Type							
	Non-CTE		Random CTE		Coherent Seq.		Tech-Prep	
	N	%	N	%	N	%	N	%
Reading/ELA	309116	87.7%	166959	85.1%	162386	87.0%	82305	88.8%
Math	226720	65.4%	113899	59.4%	117892	64.6%	62845	69.0%

Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Relative Impact of CTE Program Participation on TAKS. In addition to overall passing rates, evaluators examined ethnicity and socioeconomic status to help determine where to focus time and resources. Regression analysis allows the evaluator to enter the various factors that may impact TAKS performance into a mathematical model that will provide a better indication of where and to what extent these factors are having an effect. For our purposes, the evaluators used the following demographic factors and school type (due to the differences in passing scores between middle school and high school years) as a basis for analysis to determine the relative effect of CTE participation on TAKS performance:

- Ethnicity
- Economic status
- School type (high school or middle/Jr. high school)

The regression analysis, in every case, indicated that each of these factors had an effect on TAKS performance to some extent (see Appendix G for all regression coefficient tables). Based on the findings for the 2006 math TAKS, the model for determining the effect on math scores is:

$$\text{Constant} + \text{African American}(-13.65) + \text{Hispanic}(-8.79) + \text{Econ.}(-7.375) + \text{CTE}(-.969) + \text{MS}(3.72)$$

This shows that each of the identified factors, with the exception of being in middle school, had a negative impact on TAKS performance, with the ethnicity factors having the strongest negative impact, and being enrolled in CTE having the least. We could see from simple descriptive statistics (refer to Appendix F) that each of these factors impact TAKS performance, but the regression model illuminates the true extent of their effect. In other words, the data show that simply being enrolled in CTE as a lone factor, may have relatively little effect on TAKS math scores when compared to other student characteristics. Results were similar for TAKS reading results.

Graduation Rates

Graduation from high school is perhaps the key measure of student achievement, as well as one of the main indicators of school excellence in the AEIS system. School administrators, teachers, and parents are very interested in the graduation rates of their schools. Whatever programs help keep students in school and on track to graduate are those that are most valued and therefore receive the most resources and attention. Also important are the types of diplomas students receive. This has an impact on the types of colleges and scholarships that are available to a student.

Tables 30-312 show the distribution of graduation rates for CTE and non-CTE students over a six-year period. It should be noted that the data used for analysis of graduation rates identified a student as a CTE student if that student had participated in a CTE program at any time during his or her school attendance.

As Table 30 shows, during 2000 and 2005, a higher percentage of CTE students (91.7%) than non-CTE students (87.3%) graduated from high school. A chi-square analysis showed that difference was statistically significant. Although CTE students had higher graduation rates overall, they were less likely to graduate with a distinguished achievement diploma. Table 31 shows that among CTE students wishing to attend college, only 11.1% of them received Distinguished Achievement diplomas as opposed to 14.8% for the non-CTE students. Results were similar for the percentage of students in each group that graduated with a Recommended or Minimum diploma.

Table 30
Overall Graduation Rate for CTE v Non-CTE Students
2000 - 2005

	Non-Grad		Graduated		Chi Square Sig.
	Count	Row %	Count	Row %	
NON-CTE	53,725	12.7%	370,750	87.3%	.000
CTE PROGRAM	80,306	8.3%	889,145	91.7%	

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

Table 31
College Plans of CTE and Non-CTE Students by Graduation Plan (2000-2005)

	NON-CTE				CTE PROGRAM			
	NO COLLEGE		COLLEGE		NO COLLEGE		COLLEGE	
	N	%	N	%	N	%	N	%
DISTINGUISHED ACHIEVEMENT	10,234	11.2%	41,374	14.8%	22,374	9.1%	71,525	11.1%
RECOMMENDED	31,992	34.9%	174,251	62.4%	91,704	37.4%	395,147	61.4%
MINIMUM	36,522	39.8%	58,246	20.9%	110,882	45.2%	162,873	25.3%
SPECIAL EDUCATION	12,944	14.1%	5,187	1.9%	20,254	8.3%	14,386	2.2%

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

Table 32 and Table 33 show the overall distribution of graduates and non-graduates by CTE PEIMS code. As shown in Table 32, a chi-square analysis indicated that there was, once again, a significant difference between the observed distribution and that which would be expected in the population. Students who had been in any CTE program during their tenure in school graduated at a higher rate than non-CTE students. Students who participate in Tech-Prep programs graduated at the highest rate overall.

In Table 33, graduation types are broken down by CTE PEIMS code. Also included are dropouts, home-based unwed mothers, and deceased PEIMS codes for graduation or lack thereof. The most striking finding here is that there is a significant difference in the distribution trend between the different PEIMS code levels in dropout percentage. A chi-square analysis indicated that, in fact, the distribution of dropouts was significantly different ($\alpha < .000$) than would be expected between the different CTE PEIMS codes for this cohort of students. In short, the more involved a student becomes in the CTE curriculum, the less likely he or she is to drop out of school.

Table 32
Overall Graduation Rate by CTE PEIMS Code
2000 - 2005

	Non-Grad		Graduated		Chi Square
	N	%	N	%	Sig.
Non-CTE	53,725	12.7%	370,750	87.3%	.000
Elective CTE	32,214	9.6%	302,114	90.4%	
Coherent Seq.	31,711	8.0%	364,720	92.0%	
Tech Prep	16,381	6.9%	222,311	93.1%	

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

Table 33
Graduation Type by CTE PEIMS Code (2000-2005)

GRADUATION TYPE	CTE PEIMS Code							
	Non-CTE		Elective CTE		Coherent Seq.		Tech Prep	
	N	%	N	%	N	%	N	%
NON-GRADUATE	52,901	12.5%	31,232	9.3%	31,220	7.9%	16,165	6.8%
UNWED MOTHER	584	.1%	790	.2%	357	.1%	147	.1%
DECEASED	240	.1%	192	.1%	134	.0%	69	.0%
DISTINGUISHED ACHIEVEMENT	51,608	12.2%	35,007	10.5%	34,428	8.7%	24,464	10.2%
RECOMMENDED	206,243	48.6%	165,313	49.4%	197,320	49.8%	124,218	52.0%
MINIMUM	94,768	22.3%	91,112	27.3%	117,300	29.6%	65,343	27.4%
SPECIAL EDUCATION	18,131	4.3%	10,682	3.2%	15,672	4.0%	8,286	3.5%

Source: TEA Administrative Data (PEIMS Student Files), Texas Education Agency, 2005.

Higher Education Readiness Component (HERC)

Another measure of student performance at the Grade 11 or exit level is the state’s HERC indicator. Both the math and ELA TAKS tests at the Grade 11 level include these indicators. The HERC is based on longitudinal research that has been conducted to show that certain types of questions and score levels provide strong indicators of a student’s readiness to enter an institution of higher education and be successful. PEIMS provides a data element in a student’s record that indicates that student’s plans whether to attend college. By accessing that data for a cohort of students and comparing it to their HERC, a comparison between CTE and non-CTE students’ college aspirations and their readiness (as defined by HERC) can be obtained.

The investigation of these data sources indicated that while the majority of CTE students indicated that they were going to college, they lagged behind the non-CTE students on meeting the HERC by a margin of at least 10%. Table 34 shows the distribution of the students’ college aspirations and performance on the HERC. It should be noted that the students in this cohort (2004-2005) took the TAKS as Grade 11 students in Spring 2005, but information on college intentions in PEIMS was not available until 2006, during their Senior year.

Table 34
Distribution of Higher Education Readiness Component by CTE Participation and College Plans (2004-05 Cohort)

		Reading Higher Education Readiness Component				Math Higher Education Readiness Component			
		Did Not Meet		Met		Did Not Meet		Met	
		Count	Row %	Count	Row %	Count	Row %	Count	Row %
Non-CTE	No College	6,818	62.2%	4,149	37.8%	8,090	73.8%	2,877	26.2%
	College	21,019	41.3%	29,905	58.7%	30,191	59.3%	20,733	40.7%
CTE	No College	19,441	70.7%	8,074	29.3%	22,224	80.8%	5,291	19.2%
	College	52,188	54.8%	43,091	45.2%	66,494	69.8%	28,785	30.2%

Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Further analysis into the reading/ELA HERC results shows it has some relationship to the PEIMS CTE code. As with the reading/ELA TAKS, the more structured the CTE program, the greater the proportion of students met the HERC benchmark. However, even the Tech-Prep students met the HERC about 6% less than non-CTE students. Table 35 shows the distribution of these results. As the table indicates, the increase in performance on the reading/ELA HERC by CTE program type is most pronounced within the ethnic minority subgroups, especially the Hispanic subgroup. A larger percentage of Hispanic students in the Tech-Prep program met the reading/ELA HERC than Hispanic students not in a CTE program.

Table 35
2006 11th Grade ELA TAKS

		Reading/ELA Higher Ed. Readiness			
		Not Met		Met	
		N	%	N	%
Non-CTE	ALL STUDENTS	40,691	54.8%	33,529	45.2%
	NAT. AMER.	125	52.7%	112	47.3%
	ASIAN	1,452	38.9%	2,285	61.1%
	BLACK	7,279	70.0%	3,117	30.0%
	HISPANIC	14,929	66.3%	7,591	33.7%
	WHITE	16,906	45.3%	20,424	54.7%
	ECO DIS	16,257	71.9%	6,367	28.1%
Random CTE	ALL STUDENTS	31,119	63.5%	17,863	36.5%
	NAT. AMER.	85	54.1%	72	45.9%
	ASIAN	703	49.1%	729	50.9%
	BLACK	5,811	75.2%	1,920	24.8%
	HISPANIC	13,108	71.8%	5,138	28.2%
	WHITE	11,412	53.3%	10,004	46.7%
	ECO DIS	14,371	75.4%	4,698	24.6%
Coherent Seq.	ALL STUDENTS	39,125	62.4%	23,553	37.6%
	NAT. AMER.	126	61.2%	80	38.8%
	ASIAN	980	45.2%	1,189	54.8%
	BLACK	5,131	72.6%	1,940	27.4%
	HISPANIC	17,113	69.6%	7,467	30.4%
	WHITE	15,775	55.1%	12,877	44.9%
	ECO DIS	18,585	72.8%	6,950	27.2%
Tech Prep	ALL STUDENTS	24,261	61.0%	15,480	39.0%
	NAT. AMER.	68	56.7%	52	43.3%
	ASIAN	675	44.9%	828	55.1%
	BLACK	3,679	71.0%	1,500	29.0%
	HISPANIC	10,845	65.7%	5,656	34.3%
	WHITE	8,994	54.7%	7,444	45.3%
	ECO DIS	11,383	68.8%	5,170	31.2%

Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

With respect to the math HERC, which CTE PEIMS code a student possesses does not seem to make much difference, as it does not for the math TAKS in general. For the spring 2006 TAKS, all three PEIMS CTE groups met the HERC in nearly the same proportion, which was approximately 5% less than the non-CTE students (see Table 36).

Table 36
2006 11th Grade Math TAKS

		Math Higher Ed. Readiness			
		Not Met		Met	
		N	%	N	%
Non-CTE	ALL STUDENTS	63,519	86.4	9,964	13.6
	NAT. AMER.	204	89.1	25	10.9
	ASIAN	2,649	70.8	1,091	29.2
	BLACK	9,894	96.4	366	3.6
	HISPANIC	21,047	95.0	1,103	5.0
	WHITE	29,725	80.1	7,379	19.9
	ECO DIS	21,275	95.7	951	4.3
Random CTE	ALL STUDENTS	44,891	93.0	3,391	7.0
	NAT. AMER.	145	94.2	9	5.8
	ASIAN	1,235	85.9	203	14.1
	BLACK	7,452	98.0	150	2.0
	HISPANIC	17,441	97.1	514	2.9
	WHITE	18,618	88.1	2,515	11.9
	ECO DIS	18,213	97.5	462	2.5
Coherent Seq.	ALL STUDENTS	57,058	92.3	4,735	7.7
	NAT. AMER.	185	93.0	14	7.0
	ASIAN	1,732	79.7	440	20.3
	BLACK	6,833	97.9	148	2.1
	HISPANIC	23,438	96.9	742	3.1
	WHITE	24,870	88.0	3,391	12.0
	ECO DIS	24,365	97.1	721	2.9
Tech Prep	ALL STUDENTS	36,369	92.5	2,938	7.5
	NAT. AMER.	111	96.5	4	3.5
	ASIAN	1,234	81.9	272	18.1
	BLACK	5,003	97.8	114	2.2
	HISPANIC	15,655	95.9	675	4.1
	WHITE	14,366	88.5	1,873	11.5
	ECO DIS	15,752	96.4	581	3.6

Source: TEA Administrative Data (AEIS, PEIMS Student Files), Texas Education Agency, 2005.

Summary of Key Findings

Statewide CTE professional development conference attendance decreased from 6,365 in 2000 to 4,394 in 2004, a drop in attendance of 31%. The largest attendance decrease over this time occurred in the Business and Marketing Education areas with a decline of 47% from 2,116 in 2000 to 1,131 in 2004. Although the majority of CTE administrators and teachers responded to the surveys with high levels of satisfaction regarding the professional development being offered, attendance rates indicate that the state-level conferences are losing their priority status over time.

Teachers and administrators alike indicated on the surveys that improving student performance was one of the most effective professional development topics. This could be due to the shift among CTE administrators and staff toward involving all school personnel in the improvement of student performance on key indicators, such as the TAKS. The qualitative data revealed that school staff are interested in more integration between academic and core courses, especially in math, which also reflects the demand for rigorous academic standards for all students. It should be noted that teachers and administrators found the development of business and industry partnerships to be the least effective professional development topic.

Enrollment data show that the percentage of each PEIMS subgroup population among CTE students is represented quite similarly to those in the non-CTE program. Notably, the Hispanic subgroup consistently has at least 4.7% more students enrolled in the Tech-Prep program than in the non-CTE program. The white subgroup, however, consistently has over 3.4% fewer students enrolled in the Tech-Prep program than in the non-CTE program. Neither school counseling and guidance processes for CTE recruitment nor the students' motivation for enrolling in CTE were explored in this study, but warrant further exploration to determine the explanation for these trends.

Large numbers of CTE administrators responded with "Not Applicable" to survey items concerning CTSOs (Career and Technology Student Organizations), with the exception of FFA (CTSO for Agricultural Science) and FCCLA (CTSO for Family and Consumer Science). On the student survey, students indicated that they felt the CTSOs did a good job in teaching leadership and other life skills, yet indicated that they were not members of their curricular CTSO. This finding should be viewed with caution, however, since there was such a low response rate for the student survey and the majority came from one geographic region of the state.

Administrators were asked about their satisfaction with special CTE projects: Project Lead the Way (PLTW), the Advanced Technical Credit (ATC) accountability system, and the Special Populations Resource Center (SPACE). The focus group and survey responses revealed a general lack of awareness about these projects. Although approximately one-third of the administrators stated that they were satisfied with the quality of these programs, the majority of survey responses were neutral, likely indicating a general lack of awareness about the programs.

The CTE teacher and administrator surveys also requested feedback regarding the quality of materials developed and delivered by the four universities receiving the Educational Excellence

grants.³ Administrator responses showed the grant holders to be “Mostly Effective” or “Very Effective,” with large percentages of teachers responding “Not Applicable” in cases where they did not use the institutions’ materials.

In responding to survey items about their use of Carl Perkins funds, administrators most often spent the money for the required uses of improving, expanding, and modernizing their programs; developing and expanding the use of technology in CTE programs; and strengthening the academic and technical skills of students. With regard to allowable expenditures, administrators most often stated that funds were allocated for career guidance and academic counseling, and the leasing, purchasing, and upgrade of equipment. The least amounts of funds were generally allocated for the required expenditures of program evaluation and linking secondary and post-secondary CTE programs. Many of the TETN session participants stated that an allowance needed to be made so that districts could use Perkins funds to hire classroom aides or CTE curriculum specialists, and to provide for cross-training between core, CTE, and special education teachers.

Student TAKS performance showed that there was a considerable gap between the percent of CTE students passing and the percent of non-CTE students passing. In most instances, the students not enrolled in a CTE program outperformed CTE students as a group. Further analysis indicates, however, that although the gap was most pronounced in math, it was shrinking in the area of reading/ELA. Another interesting trend for both math and reading/ELA is that the differences in rates passing peaks in the early high school years, which indicates that academic interventions should be targeted for those years.

In addition, the study found that as CTE program structure increased, the closer the group approached the percentage passing of non-CTE students. Tech-Prep students belonging to minority subgroups showed the most dramatic increase in TAKS performance as a group when compared with random CTE elective enrollees and coherent CTE sequence participants. Also, although regression analysis showed that enrollment in a CTE program can predict a significant negative influence on a student’s TAKS score, it is not nearly as predictive as the more traditional predictors of the academic achievement gap, e.g., minority and economic status.

Notably, participation in a CTE program was found to have a significant positive impact on the overall graduation rate of high school students. From the years 2000 through 2005, students who had been involved in a CTE program graduated at a rate 4.4% higher than that of non-CTE students. Students who participated in Tech-Prep programs graduated at the highest rate overall.

On the other hand, participation in a CTE program did not positively impact the diploma type a student receives at graduation. Even so, although CTE students were less likely to graduate with a distinguished achievement diploma, analysis showed that the more involved a student becomes in the CTE curriculum, the less likely he or she is to drop out of school.

The Higher Education Readiness Component (HERC) included in the Grade 11 reading/ELA and math TAKS tests were analyzed to determine the extent to which these indicators were met by college-bound CTE and non-CTE students. Data from students’ Grade 11 TAKS taken in spring

³ Texas A&M University, Texas Tech University, University of Houston, University of North Texas.

2005 were linked to 2006 Grade 12 demographic data to determine performance on the HERC in relation to further education plans. For that cohort, 58.7% of college-bound, non-CTE seniors met the HERC in reading/ELA compared to 45.2% of college-bound CTE students. In the area of math, 40.7% of non-CTE students met the HERC while only 30.2% of CTE students did the same.

**SECTION 5:
CONCLUSIONS AND RECOMMENDATIONS**

1) The number of teachers attending their respective professional development conference is dwindling each year and dramatically so in the last three years. Yet teachers and administrators say the training received at these conferences is very effective.

It is recommended that steps be taken to improve attendance. School staff identified four factors that contribute to whether or not they attend a conference – content, whether it is a state requirement, time of year, and location. Focus group participants made suggestions that address most of these factors. In terms of content, they are very interested in cross training among CTE, core, and special education teachers; leadership and entrepreneurship; skill application; modifications; CTSOs; reading and writing teaching strategies; and using data. In terms of time of year and location, some participants also made the recommendation of offering more online and distance learning opportunities. Perhaps online discussions groups could be incorporated into these courses to further the experiential learning strategies for collaboration, team lesson planning, and cross training.

2) CTE enrollment data showed the percentage of each PEIMS subgroup population to be represented quite similarly to those in the non-CTE program. However, the Hispanic subgroup consistently had at least 4.7% more students enrolled in the Tech-Prep program than in the non-CTE program. The white subgroup, however, consistently had over 3.4% fewer students enrolled in the Tech-Prep program than in the non-CTE program.

School counseling and guidance processes for CTE recruitment and enrollment, or the students' motivation for enrolling in the CTE, were not explored in this study but warrant further exploration to explain these trends and to ensure that tracking based on race is not occurring.

3) Focus group participants felt that CTSOs were a priority due to their focus on real-world skills, and many administrators and teachers felt that CTSOs were effective in developing students' leadership skills and other positive outcomes. However, the student participation rates do not reflect this priority. FFA was considered most effective by school staff and had the highest proportion of participating students.

A thorough evaluation of CTSOs should be undertaken in collaboration with a representative group of CTE students. First, the purpose and effectiveness should be assessed. If it is concluded that the CTSOs do meet the needs of CTE students, then these students should be employed to assist in the development of recruitment plans and improvement plans for the CTSOs. FFA should be used as a positive case study for the program development plans.

4) Administrator and teacher survey responses indicated that many respondents were “neutral” with regard to the PLTW and SPACE programs. This is most likely due to a lack of knowledge about the programs.

It is recommended that a publicity and educational campaign be undertaken to increase awareness of these programs. Relationships need to be built between these granting institutions and the specific school staff who can utilize these resources.

5) There is a gap between CTE and non-CTE students regarding TAKS and HERC performance, although it is decreasing in reading/ELA. Another interesting trend for both math and reading/ELA is that the differences in rates passing peaks in the early high school years. The regression analyses examined the effect of CTE involvement relative to ethnicity, economic status, and school type (middle or high school). The model showed that being enrolled in any CTE had a small, negative impact on TAKS scores. These findings underscore the importance of cross-training so that CTE teachers can improve their core academic instruction, especially during the first years of high school.

CTE teacher preparation programs, professional development training and materials, and planning time should focus on developing CTE teachers' academic instruction ability and effective integration strategies. This focus is especially important for instruction during the first two years of high school.

6). The analyses of TAKS and HERC performance also show that the more structured the CTE program, the better the students did on the reading/ELA TAKS and HERC, although still not as well as the non-CTE students. This dynamic is especially true for students from ethnic minority backgrounds on the reading/ELA HERC. Students of Hispanic origin participating in Tech-Prep programs outperformed non-CTE students of Hispanic origin on the reading/ELA HERC.

The curriculum and teaching methods for the most successful programs in Tech-Prep should be comprehensively evaluated to develop best practices that can be distributed through websites and other available methods as well as used for professional development activities. Parents should be informed about the successes and limitations of Tech-Prep programs, both in developing industry knowledge and academic ability as well.

7). CTE's impact on graduation rates is most impressive. CTE students are more likely to remain in school and graduate than non-CTE students. This difference grows as the structure of the CTE program increases as well. This study did not explore student recruitment or their motivation behind their decision to participate in the various CTE programs.

These findings should be communicated enthusiastically throughout the CTE profession, as well as to parents, students, and school administrators. Again, this finding further confirms that it is imperative to support CTE programs by assisting teachers in enhancing their core academic instruction and integrating it with their CTE courses.

8). Analyses of HERC and graduation plans show that CTE students who plan to go to college lag behind non-CTE students who plan to go college in meeting the HERC components in reading/ELA and math.

Again, the student achievement results from this evaluation reflect the desires and needs of the CTE staff, expressed in the professional development component of this evaluation. CTE

professional development, training, and planning time should focus on the integration of technical and academic courses and skills.

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APPENDIX A
LOCAL CTE PROGRAM EVALUATION INSTRUMENT

**CAREER AND TECHNOLOGY EDUCATION
PROGRAM EVALUATION**

SCHOOL: _____

PROGRAM: _____

DATE: _____

INSTRUCTOR(S):

EVALUATOR(S):

This program evaluation instrument was developed to assist in evaluating the instructional processes of Career and Technology Education programs. It is designed for use by both the local administrator or teacher in conducting a comprehensive self-evaluation or by an external evaluation team.

Indicator Ratings: 1 = Poor (major improvement needed); 2 = Below Standard;
3 = Meets Minimum Standard; 4 = Above Minimum Standard; 5 = Outstanding.

Instructional Planning and Organization

TO WHAT EXTENT:

1. Does the instructional planning and organization provide adequate opportunity for occupational experience for each student to develop the necessary skills and competencies for employment?

Indicators:

Review the annual instructional plan

- 1
- 2
- 3
- 4
- 5

2. Is instruction directed toward appropriate and clearly formulated objectives with input from partnerships such as community, business, industry, and local administration?

Indicators:

Discuss methods used to direct instruction toward objectives using input from community, business and industry, and local administration.

- 1
- 2
- 3
- 4
- 5

3. Does the instructional program encourage the elimination of bias and stereotyping?

Indicators:

Review instructional content for instruction that encourages the elimination of bias and stereotyping.
Review program brochures.

- 1
- 2
- 3
- 4
- 5

4. Is a strategic plan in place that is revised annually and that provides strategies to address curriculum/technology updates, instructional materials, professional development, facility renovation, advisory committee utilization, and student organization development?

Indicators:
Review Strategic Plan.

- 1
- 2
- 3
- 4
- 5

5. Is an annual plan of instruction maintained with specified goals and objectives?

Indicators:
Review annual plan.

- 1
- 2
- 3
- 4
- 5

6. Is a well defined grading system in use, and was a copy given to each student? Does it include a grade for SOE if applicable?

Indicators:
Review Grading System

- 1
- 2
- 3
- 4
- 5

7. Does the instructor have access to individual student files containing the assessment of student's interests, abilities, and special needs, and is the information used appropriately to direct effective student learning?

Indicators:
Review student assessment files.

- 1
- 2
- 3
- 4
- 5

8. Is there evidence of integrating and/or teaching basic skills through appropriate partnerships (career awareness, applied academics, etc.)?

Indicators:

Review lesson plans to determine how basic skills and applied academics are incorporated into the instruction.

Review articulation agreements.

- 1
- 2
- 3
- 4
- 5

9. Is evidence of pre and post-testing for students' learning and competency gains on file?

Indicators:

Review documentation and materials.

- 1
- 2
- 3
- 4
- 5

10. Is there evidence that the students' attainment of objectives is measured by an evaluation system that includes both school-based and work-based performance?

Indicators:

Review grading policy.

- 1
- 2
- 3
- 4
- 5

11. Is the curriculum enriched with related resources (audiovisuals, guest speakers, field trips, other community resources, internet, CD-ROM, etc...)?

Indicators:

Review lesson plans to identify resources used to supplement curriculum.

- 1
- 2
- 3
- 4
- 5

12. Are program courses offered in a logical sequence utilizing prerequisite courses as necessary?

Indicators:

Review course outlines / syllabi and course catalog.

- 1
- 2
- 3

- 4
- 5

Instructional Materials Utilization

TO WHAT EXTENT:

1. Have CATE generated funds been used for the purchase of instructional materials?

Indicators:

Discuss funds available for purchasing instructional materials.

- 1
- 2
- 3
- 4
- 5

2. Do the instructional materials support the state-approved curriculum and TEKS for the instructional program?

Indicators:

Review instructional materials

- 1
- 2
- 3
- 4
- 5

3. Are instructional materials adapted to meet individual needs, interests, and rates of learning?

Indicators:

Review materials to determine how they have been adapted.

- 1
- 2
- 3
- 4
- 5

4. Is appropriate instructional technology such as computer software, videos, internet, and reference materials used to enhance instruction?

Indicators:

Review inventories and discuss use of technology in classes.

- 1
- 2
- 3
- 4
- 5

5. Are career opportunities and employability skills training materials available, and are they being utilized?

Indicators:

Review materials

- 1
- 2
- 3
- 4
- 5

6. Does the department maintain a variety of up-to-date agricultural reference materials (i.e., books, periodicals, etc.)?

Indicators:

Review reference materials

- 1
- 2
- 3
- 4
- 5

Highly Qualified Instructional Personnel

TO WHAT EXTENT:

1. Does the teacher hold certification and/or appropriate credentials in the field(s) being taught?

Indicators:

Review teaching credentials.

- 1
- 2
- 3
- 4
- 5

2. Does the teacher attend summer conferences, conventions, area and district meetings, or other sources of training?

Indicators:

Review the instructor's technical and professional growth activities for the past year.

- 1
- 2
- 3
- 4
- 5

3. Has the instructor developed and utilized methods to ensure that counselors and administrators are familiar with the goals, objectives, activities, prerequisites, enrollment guidelines, etc., of the program?

Indicators:

Review procedures used for informing counselors and administrators about the program

- 1
- 2
- 3
- 4

5

4. Has the instructor employed ethical practices and professional conduct while working with students, parents, and program-related organizations and events?

Indicators:

Identify the instructor's professional and ethical practices that influence the program.

1

2

3

4

5

5. Does the instructor work harmoniously with other faculty and correlate his/her instructional program with other subject areas?

Indicators:

Review procedures for correlating the CTE Program with other subject areas.

1

2

3

4

5

6. Does the instructor maintain membership in related professional organizations and attend all appropriate activities?

Indicators:

Review instructor's membership in professional organizations.

1

2

3

4

5

7. Are teaching methods periodically evaluated by administrators?

Indicators:

Discuss teacher evaluations with teacher and administrators.

1

2

3

4

5

Enrollment and Student/Teacher Ratio

TO WHAT EXTENT:

1. Are enrollment and class sizes manageable and adherent to suggested guidelines?

Indicators:

Review enrollment for past three years.
Check class sizes.

- 1
- 2
- 3
- 4
- 5

2. Is there a recruitment plan in place, and are students provided equal opportunities to participate in all activities regardless of race, color, national origin, gender, or disability?

Indicators:

Review recruitment materials.

Review the classifications of students enrolled in the program according to race, gender, disability, etc.

- 1
- 2
- 3
- 4
- 5

3. Are students and parents/guardians given a written statement about the purpose and nature of the program and career opportunities prior to enrollment?

Indicators:

Review the written statement and discuss information given to students prior to enrollment.

- 1
- 2
- 3
- 4
- 5

4. Are efforts made to articulate students to other educational programs according to their interests and abilities/aptitudes?

Indicators:

Discuss articulation plans.

- 1
- 2
- 3
- 4
- 5

5. Are classes scheduled to avoid conflicts with other courses students need for graduation?

Indicators:

Review school schedule.

- 1
- 2
- 3
- 4
- 5

Equipment and Supplies

TO WHAT EXTENT:

1. Are the quantity and quality of equipment (and training stations) adequate to support the independent study needs of the largest class of students?

Indicators:

Observe the equipment (and training stations) in relation to students' study needs.

- 1
- 2
- 3
- 4
- 5

2. Is there an established budget/funds equal to or above the CATE FTE formula funds designated for the program being used to purchase equipment and supplies that are representative of those used in the industry?

Indicators:

Discuss the availability of funds for updating and upgrading equipment.

- 1
- 2
- 3
- 4
- 5

3. Is a current inventory of trainers, equipment, and/or tools on file and updated annually?

Indicators:

Review equipment inventory.

- 1
- 2
- 3
- 4
- 5

4. Are there procedures and sufficient funds available for replacement and/or immediate repair of malfunctioning trainers, equipment, and/or tools?

Indicators:

Review long-range plan and/or budget.

- 1
- 2
- 3
- 4
- 5

5. Is equipment available to support the latest instructional technology of the program?

Indicators:

Observe equipment to determine if it simulates that used in industry.

- 1
- 2
- 3
- 4
- 5

6. Is the equipment upgraded annually to meet the needs of related industry?

Indicators:

Observe documentation from industry visits or surveys, recommendations of advisory committee, and supportive literature.

- 1
- 2
- 3
- 4
- 5

7. Is all equipment placed on a four-year rotating replacement plan?

Indicators:

Look at equipment list and inventory.

- 1
- 2
- 3
- 4
- 5

Instructional Facilities

TO WHAT EXTENT:

1. Are the size of the facility and number of training stations adequate to ensure safety and quality education and training in relation to the program's objectives?

Indicators:

Observe the size of the classroom, shop, lab, greenhouse, etc.

- 1
- 2
- 3
- 4
- 5

2. Have the facilities been properly maintained to provide an environment conducive to learning and working?

Indicators:

Observe maintenance of the facility in terms of painting, repair work, etc.

- 1
- 2
- 3
- 4
- 5

3. Are efforts made to provide barrier-free facilities to accommodate students with disabilities?

Indicators:

View facilities for special features or modifications to accommodate students with disabilities.

- 1
- 2
- 3
- 4
- 5

4. Are the facilities arranged in such a manner as to maximize instructional function, supervision, class control, and student safety and simulate an industry environment as appropriate?

Indicators:

View all facility components for suitability in carrying out instructional objectives and supervision.

- 1
- 2
- 3
- 4
- 5

5. Is storage space functional and adequate for instructional materials, supplies, equipment, and projects of the program?

Indicators:

Observe storage space.

- 1
- 2
- 3
- 4
- 5

6. Is adequate office space provided that contains a computer, printer, telephone, desk, and other necessary equipment?

Indicators:

Observe office space.

- 1
- 2
- 3
- 4

7. Can the present facility be changed/adapted to accommodate a change in the direction of curriculum or to accommodate other modifications in equipment, safety, etc?

Indicators:

Observe facility.

- 1
- 2
- 3

- 4
- 5

8. Is a clean-up wash basin available to students (if applicable)?

Indicators:

Observe wash basin.

- 1
- 2
- 3
- 4
- 5

9. Is locker space available to each student that meets the needs of the training being provided?

Indicators:

Observe locker space if applicable.

- 1
- 2
- 3
- 4
- 5

10. Is an appropriate storage area or locked cabinet provided for storing hazardous materials?

Indicators:

Check hazmat storage area.

- 1
- 2
- 3
- 4
- 5

Safety Training and Practices

TO WHAT EXTENT:

1. Is safety instruction planned, presented, demonstrated, and practiced by the teacher in instructional and laboratory activities?

Indicators:

Review safety instructional units being taught.

Observe laboratory processes.

- 1
- 2
- 3
- 4
- 5

2. Has a safety checklist been completed for the student environment?

Indicators:

Check facility and equipment for appropriate safety features.

- 1
- 2
- 3
- 4
- 5

3. Have appropriate measures been taken to protect the students and instructor from contamination resulting from injury or while treating an injury, including instructor training and health safety equipment?

Indicators:

Review program health/safety equipment and training for compliance with OSHA standard 1910.1030 CFR.

- 1
- 2
- 3
- 4
- 5

4. Are the classroom, laboratory, and storage areas arranged to emphasize safety?

Indicators:

Observe the instructional facilities and equipment for appropriate health, comfort, and safety features.

- 1
- 2
- 3
- 4
- 5

5. Does the instructional facility provide adequate heat, light, ventilation, dust control, and noise control to provide a safe environment conducive to learning?

Indicators:

Check facilities for proper heating, lighting, noise, and ventilation.

- 1
- 2
- 3
- 4
- 5

6. Are student safety tests indicating 100% accuracy on file for each student and evidence of hazardous material handling and right-to-know instruction retained on file to verify that appropriate training has taken place.

Indicators:

Review student safety tests.

Check safety tests for questions concerning MSDS sheets.

- 1
- 2
- 3
- 4
- 5

7. Is a hazardous waste disposal system in place for the program?

Indicators:

Review hazardous waste disposal system.

- 1
- 2
- 3
- 4
- 5

8. Do the equipment and facilities meet the minimum criteria of the appropriate educational division?

Indicators:

Review the equipment and facilities.

- 1
- 2
- 3
- 4
- 5

Program Advisory Committee and Community Relations

TO WHAT EXTENT:

1. Does the program's advisory committee meet as a group in scheduled meetings, maintain minutes of each meeting, and include recommendations for program improvement?

Indicators:

Review minutes of recent meetings.

Review action taken on previous committee recommendations.

- 1
- 2
- 3
- 4
- 5

2. Does the advisory committee include representation from school administration, counselors, parents, academic faculty, and appropriate industry persons? (The majority of members should be from industry.)

Indicators:

Review advisory committee membership.

- 1
- 2
- 3
- 4
- 5

3. Are the recommendations from the advisory committee acted upon and/or incorporated into the curriculum and the results relayed to all committee members?

Indicators:

Review changes in curriculum and equipment as a result of committee recommendations.

- 1
- 2
- 3
- 4
- 5

4. Are informative materials/meetings used to enlighten educators, parents, students, business and industry, and the general public concerning the CTE program?

Indicators:

Review newspaper releases, brochures, posters, etc.

- 1
- 2
- 3
- 4
- 5

5. Does the instructor participate in community activities and civic organizations (i.e., Chamber of Commerce, etc.)?

Indicators:

Review the instructor's involvement in community activities.

- 1
- 2
- 3
- 4
- 5

6. Is a sound public relations program being conducted in the school and community (radio, TV, news stories, brochures, civic appearances, etc.)?

Indicators:

Discuss the CTE public relations program.

- 1
- 2
- 3
- 4
- 5

Career and Technology Student Organization (CTSO)

TO WHAT EXTENT:

1. Is each student afforded the opportunity to become an active member of the CTSO?

Indicators:

Discuss membership development and recruitment.

- 1
- 2

- 3
- 4
- 5

2. Are CTSO activities an integral part of the instructional program in the attainment and balance of the primary program objectives?

Indicators:

Discuss how the CTSO is incorporated into the instructional delivery system.

- 1
- 2
- 3
- 4
- 5

3. Was each CTSO member provided the opportunity to attend and participate in local, state, and national leadership, career, and personal development activities?

Indicators:

Discuss how opportunities were offered to each member.

- 1
- 2
- 3
- 4
- 5

4. Is the local CTSO chapter in good standing with the state and national organizations?

Indicators:

Verify that membership rosters, dues, etc.

- 1
- 2
- 3
- 4
- 5

5. Does the CTSO chapter and each member employ ethical practices and professional conduct while participating in organized CTSO related activities and events?

Indicators:

Identify students' ethical practices and conduct while preparing for and participating in CTSO related activities and events.

- 1
- 2
- 3
- 4
- 5

6. Are chapter meetings held regularly with students conducting the proceedings?

Indicators:

Verify that local chapter officers are elected and have received proper training on how to conduct successful meetings.

- 1
- 2
- 3
- 4
- 5

7. Do students have the opportunity to participate in interscholastic activities to exhibit specific classroom and leadership skills.

Indicators:

Review CTSO member participation records.

- 1
- 2
- 3
- 4
- 5

8. Does the CTSO chapter hold an annual event for awards and recognition of students with parents, school officials, and community leaders invited?

Indicators:

Discuss awards events, etc. plans.

- 1
- 2
- 3
- 4
- 5

9. Was each student afforded the opportunity to participate in a chapter community service project?

Indicators:

Discuss plans for community service projects.

- 1
- 2
- 3
- 4
- 5

Coordination Activities

TO WHAT EXTENT:

1. Does each student have the opportunity to participate in work-based learning?

Indicators:

Review work-based learning opportunities.

- 1
- 2

- 3
- 4
- 5

2. Is a Work-based Training Plan signed and on file for each student pursuing work-based learning?

Indicators:

Review documentation for each student participating in a workbased program.

- 1
- 2
- 3
- 4
- 5

3. Are work-based learning objectives based on and validated by industry standards?

Indicators:

Review the validation process.

- 1
- 2
- 3
- 4
- 5

4. Is appropriate documentation maintained to indicate that the instructor is actively involved with each work-based experience?

Indicators:

Review coordination activities and records.

- 1
- 2
- 3
- 4
- 5

5. Does each student have a Supervised Occupational Experience (SOE) program? (NOTE: SOE may be defined as any individual project or projects related to the industry being studied that is approved by the instructor.)

Indicators:

Review student SOE records.

- 1
- 2
- 3
- 4
- 5

APPENDIX B

**ADMINISTRATORS' RESPONSES
TO THE CTE PROGRAM EVALUATION INSTRUMENT**

Distribution of Administrators' Rating for Each Item Included on
The CTE Program Evaluation Document

	Poor		Below Standard		Meets Standard		Above Standard		Outstanding	
	N	%	N	%	N	%	N	%	N	%
Instructional planning and organization	1	.4%	3	1.3%	69	29.0%	114	47.9%	51	21.4%
Instruction directed toward clear objectives			8	3.4%	89	37.4%	94	39.5%	47	19.7%
Program encourages the elimination of bias & stereotyping			6	2.5%	40	16.9%	108	45.6%	89	37.6%
Strategic plan in place and reviewed annually	2	.8%	8	3.4%	88	37.1%	102	43.0%	39	16.5%
Annual plan of instruction with specific goals & objectives			8	3.4%	78	33.1%	103	43.6%	47	19.9%
Well defined grading system in place			8	3.4%	71	29.8%	89	37.4%	70	29.4%
Instructor access to individual student files including spec. needs			12	5.0%	78	32.8%	94	39.5%	54	22.7%
Evidence of integration and teaching of academic skills	1	.4%	6	2.5%	86	36.1%	95	39.9%	50	21.0%
Evidence of pre and post testing of students	2	.8%	24	10.1%	117	49.2%	68	28.6%	27	11.3%
Evidence of student attainment of objectives / TEKS			11	4.6%	98	41.4%	85	35.9%	43	18.1%
Is curriculum enriched with related resources			2	.8%	48	20.3%	115	48.5%	72	30.4%
Are courses offered in a logical sequence			1	.4%	62	26.5%	101	43.2%	70	29.9%
Have CTE generated funds been used to purchase inst. materials			4	1.7%	56	24.3%	92	40.0%	78	33.9%
Do inst. materials support the TEKS for the program			2	.9%	38	16.5%	105	45.7%	85	37.0%
Are inst. materials adapted to meet individual needs					51	22.5%	118	52.0%	58	25.6%
Is appropriate technology used to enhance instruction			2	.9%	39	17.2%	102	44.9%	84	37.0%
Are career opportunities and employability skill material available			2	.9%	65	29.0%	103	46.0%	54	24.1%
Is a variety of up-to-date career reference material available	4	1.7%	8	3.5%	70	30.4%	95	41.3%	53	23.0%
Do teachers hold appropriate certification and credentials			2	.9%	26	11.3%	66	28.7%	136	59.1%
Do teachers attend summer conferences and other prof. development	1	.4%	1	.4%	37	16.1%	83	36.1%	108	47.0%
Are counselors and administrators familiar with CTE goals & objectives	1	.4%	5	2.2%	61	26.5%	108	47.0%	55	23.9%
Have instructors employed ethical and professional practices			1	.4%	26	11.3%	85	37.0%	118	51.3%
Do instructors work harmoniously with other faculty	1	.4%	1	.4%	57	24.8%	101	43.9%	70	30.4%
Do instructors maintain membership in professional organizations	2	.9%	6	2.6%	54	23.7%	90	39.5%	76	33.3%
Are teaching methods periodically evaluated by administrators	1	.4%	1	.4%	61	26.5%	104	45.2%	63	27.4%
Are enrollment and class sizes manageable	2	.9%	3	1.3%	66	28.8%	95	41.5%	63	27.5%
Is a recruitment plan in place			1	.4%	45	19.7%	90	39.3%	93	40.6%
Are students and parents given a written statement about CTE goals & objts.			7	3.1%	91	39.7%	78	34.1%	53	23.1%
Are efforts made to articulate students to other programs based on interest	1	.4%	3	1.3%	79	34.3%	92	40.0%	55	23.9%
Are classes scheduled to avoid conflict with required courses			1	.4%	77	33.6%	93	40.6%	58	25.3%
Is the quality and quantity of training equipment adequate and up-to-date	1	.4%	8	3.5%	68	29.7%	95	41.5%	57	24.9%
Is there an established budget for purchasing or upgrading equipment	1	.4%	5	2.2%	75	32.8%	95	41.5%	53	23.1%
Is a current inventory of equipment on file and updated annually	1	.4%	6	2.6%	85	37.1%	88	38.4%	49	21.4%
Are procedures and funds in place for replacement or repair of equipment			7	3.1%	84	37.0%	89	39.2%	47	20.7%
Is equipment available to support the latest industry technology			9	3.9%	70	30.6%	106	46.3%	44	19.2%
Is equipment upgraded annually to reflect the current industry			17	7.4%	95	41.5%	85	37.1%	32	14.0%
Is equipment placed on a four-year replacement rotation	6	2.6%	29	12.7%	108	47.2%	56	24.5%	30	13.1%
Are the size of the facility and number of training stations adequate	1	.4%	7	3.1%	85	37.1%	83	36.2%	53	23.1%
Have facilities been properly maintained			10	4.4%	73	31.9%	87	38.0%	59	25.8%
Are efforts made to provide barrier-free facilities			1	.4%	80	34.9%	85	37.1%	63	27.5%
Are facilities arranged to maximize instruction, supervision, and safety	1	.4%	7	3.1%	74	32.3%	95	41.5%	52	22.7%
Is storage space functional and adequate	1	.4%	15	6.6%	77	33.6%	91	39.7%	45	19.7%
Is adequate office space provided	4	1.7%	7	3.1%	73	31.9%	68	29.7%	77	33.6%
Can the facility be adapted to accommodate a change in curriculum			3	1.3%	96	41.9%	95	41.5%	35	15.3%
Is a clean-up wash basin available to students	2	.9%	3	1.3%	109	47.6%	68	29.7%	47	20.5%
Is locker space available for students where needed	4	1.7%	23	10.0%	125	54.6%	47	20.5%	30	13.1%
Is appropriate hazardous material storage available	3	1.3%	5	2.2%	111	48.5%	61	26.6%	49	21.4%
Is safety instruction planned, presented, and practiced by the instructor					61	27.1%	89	39.6%	75	33.3%
Has a safety checklist been completed for the student environment	1	.4%	4	1.8%	95	42.2%	80	35.6%	45	20.0%
Are the instructor and student protected from contamination from injury			1	.4%	89	39.6%	85	37.8%	50	22.2%
Are the classroom, lab, and storage areas arranged for safety			3	1.3%	85	37.8%	86	38.2%	51	22.7%
Does facility provide adequate heat, light, and ventilation	2	.9%	6	2.7%	92	40.9%	73	32.4%	52	23.1%
Are student safety tests indicating 100% accuracy on file	2	.9%	9	4.0%	104	46.2%	62	27.6%	48	21.3%
Is a hazardous waste disposal system in place where needed	2	.9%	12	5.3%	134	59.6%	39	17.3%	38	16.9%
Do equipment and facilities meet minimum criteria	1	.4%	1	.4%	103	45.8%	68	30.2%	52	23.1%
Does a CTE advisory committee meet as a group on a regular basis	8	3.6%	31	13.9%	113	50.7%	42	18.8%	29	13.0%
Does the advisory committee include representation from a stakeholder groups	7	3.1%	28	12.6%	115	51.6%	40	17.9%	33	14.8%
Are recommendations from the advisory committee acted upon and integrated	7	3.1%	22	9.9%	114	51.1%	54	24.2%	26	11.7%
Are informative meetings and materials used to enlighten people about CTE	4	1.8%	16	7.2%	108	48.4%	62	27.8%	33	14.8%
Do the instructors participate in community activities & civic groups	4	1.8%	15	6.7%	90	40.4%	71	31.8%	43	19.3%
Is a sound PR program being conducted in the school and community	3	1.3%	16	7.2%	88	39.5%	80	35.9%	36	16.1%
Is each student given the opportunity to become an active CTSO member	1	.5%	21	9.5%	62	27.9%	68	30.6%	70	31.5%
Are CTSO activities an integral part of the instructional program	1	.5%	26	11.7%	67	30.2%	72	32.4%	56	25.2%
Was each CTSO member given the opportunity to participate above local level	1	.5%	23	10.4%	57	25.7%	72	32.4%	69	31.1%
Are local CTSO chapters in good standing with the state and national assns.	1	.5%	21	9.5%	62	27.9%	51	23.0%	87	39.2%
Do CTSO chapters and member employ ethical and professional practices	1	.5%	16	7.2%	59	26.6%	62	27.9%	84	37.8%
Are chapter meetings held regularly with students running the meeting	2	.9%	26	11.7%	77	34.7%	64	28.8%	53	23.9%
Do students have the opportunity to participate in interscholastic CTSO activities	1	.5%	12	5.4%	60	27.0%	79	35.6%	70	31.5%
Do the CTSO's hold an annual award or recognition event	4	1.8%	30	13.5%	62	27.9%	57	25.7%	69	31.1%
Was each student given the opportunity to participate in a community service activity	2	.9%	21	9.5%	71	32.0%	65	29.3%	63	28.4%
Does each student have the opportunity to participate in WBL	2	.9%	14	6.3%	87	39.4%	69	31.2%	49	22.2%
Is a WBL training plan signed and on file for students in WBL	2	.9%	19	8.6%	89	40.3%	58	26.2%	53	24.0%
Are WBL objectives based on valid industry standards	2	.9%	14	6.4%	92	41.8%	64	29.1%	48	21.8%
Is documentation maintained showing the instructor is actively involved in WBL	2	.9%	17	7.7%	92	41.8%	69	31.4%	40	18.2%
Does each student maintain a supervised occupational experience project	2	.9%	20	9.1%	97	44.1%	68	30.9%	33	15.0%

APPENDIX C
ADMINISTRATOR, TEACHER, AND STUDENT SURVEY INSTRUMENTS

**Texas Education Agency
Career and Technology Education**

District Administrator Survey

The purpose of this survey is to gather data and information about the Career and Technology Education (CTE) programs in Texas. It is very important that you are as accurate and complete as possible in your responses. The information you provide will be used to make state-level decisions about the future of CTE. **Please be aware that no effort will be made to identify you as an individual administrator.** District identification will be used for group comparison purposes only. Your assistance in this activity is important and appreciated.

DISTRICT: _____

DISTRICT NUMBER:

For which level are CTE data being reported on this survey? Entire District _____ Single Campus _____

1. Please indicate your current primary position with the school district.

- | | |
|--|--|
| <input type="checkbox"/> Superintendent | <input type="checkbox"/> Asst. Principal |
| <input type="checkbox"/> Career and Technology Administrator | <input type="checkbox"/> Curriculum Director |
| <input type="checkbox"/> Career and Technology Supervisor | <input type="checkbox"/> Guidance Counselor |
| <input type="checkbox"/> Principal | <input type="checkbox"/> Other |

2. Please indicate the Career and Technology programs offered in your school district (check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Science & Technology Education | <input type="checkbox"/> Health Science Technology Education |
| <input type="checkbox"/> Business and Marketing Education | <input type="checkbox"/> Technology Education |
| <input type="checkbox"/> Family and Consumer Sciences Education | <input type="checkbox"/> Trade and Industrial Education |

3. Prior to becoming a district CTE administrator, what was your experience related to CTE?

- | | |
|--|----------------------------------|
| <input type="checkbox"/> Teacher | <input type="checkbox"/> Student |
| <input type="checkbox"/> Advisory Committee Member | <input type="checkbox"/> Other |
| <input type="checkbox"/> Business/ Industry Employee | <input type="checkbox"/> None |

4. How many CTE teachers were employed by your school district during each of the following school years?

2003-04 _____ 2004-05 _____ 2005-06 _____

5. How many CTE teachers in your school district attended statewide professional development training during each of the following school years?

2003-04 _____ 2004-05 _____ 2005-06 _____

6. What factors influenced your decision to send CTE teachers to statewide professional development training during the 2005-06 school year? (Check all that apply)

- Length of training
- Reputation of conference
- Recommendation from others
- State or district requirements
- Time of year
- Location of training
- Availability of stipend
- Content of training
- Other (Please Specify) _____

Not Effective Mostly Ineffective Neutral Mostly Effective Very Effective	7. Please indicate how effectively the content of statewide professional development training has improved the ability of teachers at your school to assist students in each of the following areas.
1 2 3 4 5	Enable CTE teachers to create and sustain education partnerships to improve the transition from high school to college and careers
1 2 3 4 5	Assist CTE teachers to identify struggling learners
1 2 3 4 5	Assist CTE teachers to provide effective student interventions
1 2 3 4 5	Assist CTE teachers to improve student performance
1 2 3 4 5	Assist CTE teachers to develop meaningful work-based learning experiences
1 2 3 4 5	Assist CTE teachers to develop effective business and industry partnerships
1 2 3 4 5	Assist CTE teachers to enhance CTE courses through alignment and integration of academic standards
1 2 3 4 5	Assist CTE teachers to increase the rigor and relevance of CTE courses
1 2 3 4 5	Assist CTE teachers to use industry-recognized skill standards and assessments for improving CTE programs in Texas
1 2 3 4 5	Assist CTE teachers to promote technical skill attainment and academic achievement among students who are members of special populations.

8. Does your school district's CTE program offer students the opportunity to participate in Career and Technology Student Organization (CTSO) activities?

_____ YES _____ NO (**If "NO", skip to question 14**)

9. Which CTSO(s) is/are sponsored through your school district's CTE program? (Check all that apply)

- Future Farmers of America (FFA)
- Future Business Leaders of America (FBLA)
- Business Professionals of America (BPA)
- Family, Career, and Community Leaders of America (FCCLA)
- Health Occupations Students of America (HOSA)
- Skills USA
- DECA – An Association of Marketing Students
- Technology Students Association (TSA)
- None

10. Total current CTSO membership in your school district _____

Not Effective Mostly Ineffective Neutral Mostly Effective Very Effective Not Applicable	11. Please indicate how effectively each of the following Career and Technology Student Organizations (CTSOs) help to develop your students' leadership skills.
1 2 3 4 5 NA	Future Farmers of America (FFA)
1 2 3 4 5 NA	Business Professionals of America (BPA)
1 2 3 4 5 NA	Future Business Leaders of America (FBLA)
1 2 3 4 5 NA	Family, Career, and Community Leaders of America (FCCLA)
1 2 3 4 5 NA	DECA – An Association of Marketing Students
1 2 3 4 5 NA	Health Occupations Students of America (HOSA)
1 2 3 4 5 NA	Skills USA
1 2 3 4 5 NA	Technology Students Association (TSA)

Not Effective Mostly Ineffective Neutral Mostly Effective Very Effective Not Applicable	12. Please indicate how effectively each of the following Career and Technology Student Organizations (CTSOs) help keep students engaged in school
1 2 3 4 5 NA	Future Farmers of America (FFA)
1 2 3 4 5 NA	Business Professionals of America (BPA)
1 2 3 4 5 NA	Future Business Leaders of America (FBLA)
1 2 3 4 5 NA	Family, Career, and Community Leaders of America (FCCLA)
1 2 3 4 5 NA	DECA – An Association of Marketing Students
1 2 3 4 5 NA	Health Occupations Students of America (HOSA)
1 2 3 4 5 NA	Skills USA
1 2 3 4 5 NA	Technology Students Association (TSA)

Not Effective Mostly Ineffective Neutral Mostly Effective Very Effective Not Applicable	13. Please indicate how effectively each of the following Career and Technology Student Organizations (CTSOs) help to improve students' academic achievement
1 2 3 4 5 NA	Future Farmers of America (FFA)
1 2 3 4 5 NA	Business Professionals of America (BPA)
1 2 3 4 5 NA	Future Business Leaders of America (FBLA)
1 2 3 4 5 NA	Family, Career, and Community Leaders of America (FCCLA)
1 2 3 4 5 NA	DECA – An Association of Marketing Students
1 2 3 4 5 NA	Health Occupations Students of America (HOSA)
1 2 3 4 5 NA	Skills USA
1 2 3 4 5 NA	Technology Students Association (TSA)

Not Effective Mostly Ineffective Neutral Mostly Effective Very Effective Not Applicable	14. Please indicate how effectively each of the following curricular Career and Technology Student Organizations (CTSOs) help to improve students' technical skill attainment
1 2 3 4 5 NA	Future Farmers of America (FFA)
1 2 3 4 5 NA	Business Professionals of America (BPA)
1 2 3 4 5 NA	Future Business Leaders of America (FBLA)
1 2 3 4 5 NA	Family, Career, and Community Leaders of America (FCCLA)
1 2 3 4 5 NA	DECA – An Association of Marketing Students
1 2 3 4 5 NA	Health Occupations Students of America (HOSA)
1 2 3 4 5 NA	Skills USA
1 2 3 4 5 NA	Technology Students Association (TSA)

Strongly Disagree Disagree Neutral Agree Strongly Agree	15. Please indicate your level of agreement with the following statements regarding your school district's Career and Technology Education (CTE) programs.
1 2 3 4 5	The state level leadership for CTE programs is responsive to my needs.
1 2 3 4 5	ESC CTE specialists are accessible and provide information about policies and procedures.
1 2 3 4 5	The school supports and encourages students to participate in CTE student organizations (ie: FFA, FBLA, HOSA).
1 2 3 4 5	I am familiar with the State Plan for Career and Technology Education.
1 2 3 4 5	CTE teachers make use of the ATC accountability system and online database.
1 2 3 4 5	The Special Populations Resource Center (SPACE) is used to provide resources and technical assistance to meet the needs of special populations at my school.
1 2 3 4 5	CTE teachers work with other school personnel and parents in meeting the needs of

	students who are members of special populations.
1 2 3 4 5	Students who are members of special populations are encouraged to participate in CTE student organization activities.
1 2 3 4 5	Students who are members of special populations are encouraged to participate in work-based-learning activities and programs.

15. The Carl Perkins federal law identifies required and permissible use of funds for eligible recipients. Only 5% of each eligible recipient’s funds may be used for administrative costs associated with the administration of activities. **Thinking about how your funds were used during the 2005-06 school year**, what percentage of the remaining non-administrative funds (95%) were used for “required uses” and what percentage of funds were used for “permissible uses” of funds?

_____ Percentage of Perkins LEA funds for **required uses** of funds?

_____ Percentage of Perkins LEA funds for **permissible uses** of funds?

A. For each of the following **required uses** of Perkins funds, indicate what **percentage** of total funding was used to:

- _____ 1. Strengthen the academic and technical skills of students participating in CTE programs by the integration of academics with CTE programs through a coherent sequence of courses;
- _____ 2. Provide students with strong experience in and understanding of all aspects of an industry;
- _____ 3. Develop, improve, or expand the use of technology in CTE – which may include –
 - A. training of CTE personnel to use state-of-the art technology, which may include distance learning;
 - B. providing CTE students with the academic and technical skills that lead to entry into the high technology and telecommunications field; or
 - C. encouraging schools to work with high technology industries to offer voluntary internships and mentoring programs;
- _____ 4. Provide professional development programs to teachers, counselors, and administrators, including –
 - A. in-service and pre-service training in state-of-the-art CTE programs and techniques, in effective teaching skills based on research, and in effective practices to improve parental and community involvement;
 - B. support of educational programs for CTE teachers in public schools and other public school personnel who are involved in the direct delivery of educational services to CTE students, to ensure that such teachers and personnel stay current in all aspects of the industry;
 - C. internship programs that provide business experience to teachers; and
 - D. programs designed to train teachers specifically in the use and application of technology;
- _____ 5. Develop and implement evaluations of the CTE programs carried out with Perkins funds, including an assessment of how the needs of special populations are being met;
- _____ 6. Initiate, improve, expand, and modernize quality CTE programs;
- _____ 7. Provide services and activities that are of sufficient size, scope and quality to be effective; and
- _____ 8. Link secondary and postsecondary CTE, including implementing tech-prep programs.

B. For each of the following **permissible uses** of Perkins funds, indicate what **percentage** of total funding was used to:

- _____ 1. Involve parents, businesses, and labor organizations as appropriate, in the design, implementation, and evaluation of CTE programs, including establishing effective programs and procedures to enable informed and effective participation in such programs;
- _____ 2. Provide career guidance and academic counseling for students participating in CTE programs;
- _____ 3. Provide work-related experience, such as internships, paid work-based learning, school-based enterprises, entrepreneurships, and job-shadowing that are related to CTE programs;
- _____ 4. Provide programs for special populations;
- _____ 5. Local education and business partnerships;
- _____ 6. Assist Career and Technology Students Organizations (CTSOs)
- _____ 7. Mentoring and support services;
- _____ 8. Leasing, purchasing, upgrading or adapting equipment, including instructional aides;
- _____ 9. Teacher preparation programs that assist individuals who are interested in becoming CTE instructors, including individuals with experience in business and industry;
- _____ 10. Improving or developing new CTE courses;
- _____ 11. Provide support for family and consumer sciences programs;
- _____ 12. Provide CTE programs for adults and school dropouts to complete their secondary school education;
- _____ 13. Provide assistance to students who have participated in services and activities in finding appropriate job and continuing their education;
- _____ 14. Support nontraditional training and employment activities;
- _____ 15. Support other CTE activities that are consistent with the purpose of the Perkins law.

**Texas Education Agency
Career and Technology Education**

Teacher Survey

The purpose of this survey is to gather data and information about the Career and Technology programs in Texas. It is very important that you be as complete and accurate as possible in your responses as the information you provide will be used to make state-level decisions about the future of Career and Technology education. Please be aware that no effort will be made to identify you as an individual teacher. Your assistance in this important activity is important and appreciated.

Please indicate the Career and Technology curriculum area in which you teach (check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Agricultural Science & Technology | <input type="checkbox"/> Business and Information Technology |
| <input type="checkbox"/> Family and Consumer Sciences | <input type="checkbox"/> Marketing Education |
| <input type="checkbox"/> Health Science Technology | |
| <input type="checkbox"/> Technology Education | |
| <input type="checkbox"/> Trade and Industrial Education | |

Years of Teaching Experience

_____ 0-5 _____ 6-10 _____ 11-15 _____ 16-20 _____ 20-25 _____ Over 25

Highest Degree Earned

_____ None _____ Associates _____ Bachelors _____ Masters _____ Doctorate

Employment Contract Length (Select the duration time below that best fits your current employment)

_____ Part-time _____ 9 months _____ 10 months _____ 11 months _____ 12 months

What type of teacher certification program did you complete?

_____ None _____ Traditional University _____ Alternative Program

What is the total enrollment in your program?

Total of class rosters (count students in each class regardless of duplication)

Total unduplicated enrollment (number of *different* students in program)

Grade levels taught (check all that apply) ___ 7 ___ 8 ___ 9 ___ 10 ___ 11 ___ 12

Number of class periods taught each day _____

Total number of class periods per day _____

Largest class size _____ Smallest class size _____

Total budgeted funds dedicated to your program \$ _____ .00

Does the program maintain a Career and Technology Student Organization (CTSO) in good standing?

_____ YES _____ NO

Which CTSO(s) is/are sponsored through your program?

- | | |
|--------------------------------|-------------------------------|
| <input type="checkbox"/> FBLA | <input type="checkbox"/> VICA |
| <input type="checkbox"/> FFA | <input type="checkbox"/> TSA |
| <input type="checkbox"/> FCCLA | <input type="checkbox"/> HOSA |
| <input type="checkbox"/> MSA | |

Total CTSO membership _____

Indicate each area in which you have received professional development.

- Special Needs
- Limited English Proficiency
- Cultural Diversity
- Classroom Management
- Technical Subject Matter in Field Taught
- Learning Styles
- Curriculum Alignment
- Differentiated Instruction
- Use and Analysis of Data
- Student Assessment

Strongly Disagree Disagree Don't Know Agree Strongly Agree	Please indicate your level of agreement with the following statements:
1 2 3 4 5	My program serves an important role in preparing students for the TAKS/SDAA test.
1 2 3 4 5	I work closely with other teachers in the school to align curriculum.
1 2 3 4 5	I accurately document program area TEKS taught in class.
1 2 3 4 5	I accurately document TEKS from other curricular areas (i.e. Math, English) taught in class.
1 2 3 4 5	I attend TAKS/SDAA training and help administer the test.
1 2 3 4 5	My local professional development provides me with the skills and knowledge needed to improve student achievement in all areas.
1 2 3 4 5	State and regional professional development programs meet my needs.
1 2 3 4 5	I am familiar with the School Improvement Plan for my school.
1 2 3 4 5	I am respected by my school administration.
1 2 3 4 5	I am respected by my fellow teachers.
1 2 3 4 5	My program is supported by the school administration.
1 2 3 4 5	While everyone could use more money, I am satisfied with the cooperation of the school administration in providing adequate resources.
1 2 3 4 5	My program is isolated in that we are not seen as a “real” or “important” part of the school.
1 2 3 4 5	I am held accountable for student performance on state-mandated tests like TAKS.
1 2 3 4 5	I work closely with teachers in other curricular areas to improve the academic achievement of students.
1 2 3 4 5	Students in my program are treated with the same, or higher, respect as other students.
1 2 3 4 5	Curriculum materials for my program are available and up to date.
1 2 3 4 5	The state level leadership for my program is adequate and responsive to my needs.
1 2 3 4 5	My program is important in helping students achieve at high levels in all areas.
1 2 3 4 5	The school supports and encourages students in my program’s CTSO (ie: FFA, FBLA).
1 2 3 4 5	The community supports and encourages students in my program’s CTSO.
1 2 3 4 5	To get the full benefit of my program, students should be enrolled in a coherent sequence or Tech-Prep.
1 2 3 4 5	Most students who have been in my program go into a career related to the program area.
1 2 3 4 5	Most students who have been in my program pursue a four-year college degree or higher.
1 2 3 4 5	Most students who have been in my program go directly into the workforce upon completion of the program.
1 2 3 4 5	Students who are CTSO members in my program participate in CTSO activities

	above the local level.
1 2 3 4 5	CTSO activities and competitions accurately reflect the current standards and practices of the industry being studied.
1 2 3 4 5	My students are encouraged to participate in work-based learning (WBL) activities.
1 2 3 4 5	Local and area employers value and hire students who have been through my program.
1 2 3 4 5	I have a program advisory committee that is helpful in making decisions about program improvement.
1 2 3 4 5	Parents are anxious and willing to get involved in program activities.
1 2 3 4 5	Parents frequently contact me with questions about my program.
1 2 3 4 5	I utilize the CATE Special Populations Web site and resources.
1 2 3 4 5	I utilize detailed district and campus student performance data to assist in program planning.
1 2 3 4 5	Students and parents are provided with reliable employment data and information about current and emerging careers.
1 2 3 4 5	I utilize partnerships to support programs and services for students with special needs.
1 2 3 4 5	My program prepares students to meet employer expectations, including leadership, citizenship, ethics, and skillful management of adult roles.

Please provide any comments you have about state-level leadership for:

Curriculum Materials

Student Organization Activities

Regional Service Centers

Special Populations Resource Center

Professional Development

Teacher/Professional Organization Activities

Administrative Support

Postsecondary Partnering and Support

**Texas Education Agency
Career and Technology Education**

11th and 12th Grade Student Survey

The purpose of this survey is to gather data and information about the Career and Technology Education programs in Texas. It is very important that you be as complete and accurate as possible in your responses as the information you provide will be used to make state-level decisions about the future of Career and Technology education. Please be aware that no effort will be made to identify you as an individual student. District and campus identification as well as age, gender and ethnicity will be used for group comparison purposes only. Your assistance in this important activity is important and appreciated.

Please indicate your current school grade or status.

- 11th
- 12th
- College/Out of high school

Age _____ Gender: M F Ethnicity: African American _____
Asian/Pacific Islander _____
Hispanic _____
Native American _____
White/Caucasian _____

Are you required to take and pass the TAKS test for graduation? YES NO

Have you taken the TAKS test required for graduation? YES NO

Have you passed all portions of the TAKS test required for graduation? YES NO

Please indicate the Career and Technology program(s) you have been enrolled in at your school (check all that apply)

- Agricultural Science & Technology
- Family and Consumer Sciences
- Health Science Technology
- Technology Education
- Trade and Industrial Education
- Business and Information Technology
- Marketing Education

If in high school, how many years have you taken Career and Technology classes?

- 1
- 2
- 3
- 4

I am a member of: (Check all that apply)

- FBLA
- FFA
- FCCLA
- MSA
- VICA
- TSA
- HOSA
- None

Indicate the career area that most closely describes your plans for work in the future:

- Science/Natural Resources/Agriculture
- Health Services
- Fine Arts/Humanities
- Engineering/Technical
- Business/Marketing
- Hospitality/Entertainment Services
- Social and Human Services
- Teaching/Education Service
- Military
- Other/Not Listed

Do you plan to continue your education after high school? YES NO

If YES, indicate the type of further education planned:

- College (4 year)
- Career and Technical Education/Vocational or Trade Training
- Community or Junior College (2 year)
- Adult Education
- Apprenticeship/On the Job Training
- Military Training

If NO, indicate the reason(s) for not continuing your education:

- I have a job
- I need to work
- I am getting married or already married
- I have a child or children
- It is too expensive

- I am unsure of my plans
- I have poor grades or am not ready

Have you completed coursework and received an industry certification, license, or credential in your Career and Technology area (example: Cosmetology License, Automotive Certification, etc)

YES NO

My work experience while in school was or has been:

- Work-based Learning or Co-Op through my Career and Technology class(es)
- Part-time work
- Summer job
- Self-employment
- None
- Other

Strongly Disagree Disagree Don't Know Agree Strongly Agree	
	Please indicate your level of agreement with the following statements regarding your school's Career and Technology Education (CTE) programs.
1 2 3 4 5	My school has provided me with help and activities to plan a career.
1 2 3 4 5	My school has provided me help in finding a job.
1 2 3 4 5	My CTE teacher(s) has helped me develop work related skills, including getting along with others, use of technology, and self-responsibility.
1 2 3 4 5	My school has been academically challenging and provided me with the confidence to pursue further education after high school.
1 2 3 4 5	My CTE program has helped me make responsible choices, understand my individual rights, and express my opinions respectfully as a young adult.
1 2 3 4 5	My participation in CTE student organizations has increased my knowledge of the industry and helped me make responsible choices about my future.
1 2 3 4 5	My participation in CTE student organizations has helped me develop work related skills, including getting along with others, use of technology, and self-responsibility.
1 2 3 4 5	My CTE program has given me the skills I will need to be a productive family member and wage earner.

Please provide any comments you have about your school's CTE program regarding:

Industry Equipment/Facilities for Practice

Student Organization Activities

Help in Planning for a Career

Assistance with Special Needs

Safety Practices

Student/Teacher Interaction

Assignments/Classwork/Tests

APPENDIX D

DISTRIBUTION OF RESPONSES TO PERCEPTION SURVEY ITEMS

Distribution of Administrator Responses to General Perception
Items on the Administrator Survey

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
State CTE Leadership is Responsive to Needs	1	.6%	3	1.7%	31	17.9%	109	63.0%	29	16.8%
ESC CTE specialists are accessible and helpful	6	3.5%	2	1.2%	21	12.1%	90	52.0%	54	31.2%
My school supports and encourages CTSO involvement	2	1.2%	3	1.7%	12	6.9%	71	41.0%	85	49.1%
I am familiar w/ the state plan for CTE	1	.6%	5	2.9%	18	10.4%	93	53.8%	56	32.4%
CTE teachers use the ATC accountability system	4	2.3%	15	8.7%	65	37.6%	72	41.6%	17	9.8%
SPACE is used to help special populations	4	2.3%	26	15.0%	91	52.6%	46	26.6%	6	3.5%
CTE teachers work with others to meet needs of spec. pop.	2	1.2%	2	1.2%	17	9.8%	102	59.0%	50	28.9%
Spec. pop. students are encouraged to join CTSO's	2	1.2%	2	1.2%	13	7.5%	76	43.9%	80	46.2%
Spec. pop. students are encouraged to try WBL	1	.6%			14	8.1%	88	50.9%	70	40.5%

Distribution of Teacher Responses to the General Perception
Items on the Teacher Survey

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
State or regional PD conferences meet my needs	16	1.6%	108	11.1%	109	11.2%	595	61.0%	147	15.1%
Students in CTSO's achieve recognition above loca	7	.7%	36	3.7%	192	19.7%	446	45.7%	294	30.2%
CTSO activities accurately reflect current industry	6	.6%	48	4.9%	216	22.2%	473	48.5%	232	23.8%
My admin. encourages me to participate in PD from	27	2.8%	84	8.6%	67	6.9%	493	50.5%	305	31.3%
I encourage students to prepare for nontraditional c	4	.4%	19	1.9%	50	5.1%	543	55.6%	360	36.9%
My district provides services to help spec. pop. stud	14	1.4%	47	4.8%	117	12.0%	567	58.1%	231	23.7%
State leadership for my CTE program is responsive	21	2.2%	68	7.0%	241	24.7%	472	48.4%	174	17.8%
My school supports and encourages CTSO involvem	18	1.8%	81	8.3%	114	11.7%	496	50.9%	265	27.2%
My community supports CTSO activities	15	1.5%	77	7.9%	206	21.1%	474	48.6%	203	20.8%
I work with other school staff to meet needs of spec	8	.8%	34	3.5%	61	6.3%	631	64.7%	242	24.8%
Spec. pop. students are encouraged to CTSO invol	7	.7%	27	2.8%	141	14.4%	540	55.3%	261	26.7%
Spec. pop. students are encouraged to try WBL	5	.5%	26	2.7%	149	15.3%	561	57.5%	235	24.1%

Distribution of Student Responses to General Perception
Items on the Student Survey

	Not Applicable		Not Effective		Mostly Ineffective		Neutral		Mostly Effective		Very Effective	
	N	%	N	%	N	%	N	%	N	%	N	%
School Help in Career Planning	268	5.4%	229	4.6%	176	3.6%	698	14.2%	2,785	56.5%	769	15.6%
School Help Finding Job	873	17.7%	817	16.6%	658	13.4%	1,141	23.2%	1,082	22.0%	354	7.2%
Teacher Helped Develop Work Skills	182	3.7%	178	3.6%	150	3.0%	923	18.7%	2,472	50.2%	1,020	20.7%
School is Academically Challenging	201	4.1%	196	4.0%	196	4.0%	688	14.0%	2,628	53.4%	1,016	20.6%
CTE Program Teaches Responsible Decision Making	190	3.9%	190	3.9%	198	4.0%	1,084	22.0%	2,480	50.4%	783	15.9%
CTSO Help in Deciding About My Future	173	3.5%	195	4.0%	181	3.7%	1,172	23.8%	2,411	49.0%	793	16.1%
CTSO Help With Employability Skills	150	3.0%	191	3.9%	151	3.1%	1,028	20.9%	2,493	50.6%	912	18.5%
CTE Program Has Adequate Facilities	398	8.1%	309	6.3%	121	2.5%	1,617	32.8%	1,590	32.3%	890	18.1%
CTSO Activities are Relevant to My Goals	512	10.4%	312	6.3%	164	3.3%	1,542	31.3%	1,574	32.0%	821	16.7%
School Provided Counseling Help in Career Planning	493	10.0%	291	5.9%	161	3.3%	1,552	31.5%	1,548	31.4%	880	17.9%
School Provided Assistance for Special Needs	826	16.8%	241	4.9%	128	2.6%	1,679	34.1%	1,311	26.6%	740	15.0%
CTE Program Observed Safety Practices	301	6.1%	145	2.9%	94	1.9%	1,143	23.2%	1,835	37.3%	1,407	28.6%
Quality of Student / Teacher Interaction	343	7.0%	190	3.9%	119	2.4%	1,268	25.7%	1,770	35.9%	1,235	25.1%
Relevance and Fairness of Assignments and Tests	434	8.8%	265	5.4%	141	2.9%	1,481	30.1%	1,631	33.1%	973	19.8%

APPENDIX E
SITE VISIT INTERVIEW PROTOCOLS

Teacher Interview Protocol

In an effort to gain more valuable information about Career and Technology Education programs in Texas I would like to have you respond to a few questions concerning these programs in your school and in the state in general.

With your permission, I would like to audio tape record your responses for accurate transcription later. Please be confident that no effort will be made to reveal your identity, and that you may feel free to be as candid as you wish.

Do I have your permission to record your responses? Thank you, I will begin the recording now.

- 1) What are you doing to help ensure that your classes prepare students with both academic and career knowledge and skills?
- 2) What types of professional development activities are most useful to you?
- 3) How would you rate the quality and availability of curriculum material for your subject area?
- 4) How important is it for your students to be involved in their CTSO?
- 5) What do you do to encourage students to pursue a coherent sequence of courses or Tech-Prep opportunity?
- 6) In what ways could state-level leaders at TEA or the CTSO be more responsive to your needs as a CTE teacher?
- 7) What efforts are being made to ensure CTE courses better prepare students for academic courses and TAKS?
- 8) What assistance do you need most from your school district to assist you in improving your ability to provide the best possible CTE program?

Thank you for your cooperation. Your responses will be a valuable part of our evaluation.

Administrator Interview Protocol

In an effort to gain more valuable information about Career and Technology Education programs in Texas I would like to have you respond to a few questions concerning these programs in your school and in the state in general.

With your permission, I would like to audio tape record your responses for accurate transcription later. Please be confident that no effort will be made to reveal your identity, and that you may feel free to be as candid as you wish.

Do I have your permission to record your responses? Thank you, I will begin the recording now.

- 1) What efforts are being made to ensure that the CTE program at your school meets the academic and career prep needs of all students?
- 2) What types of professional development activities do you think are most needed by your CTE teachers?
- 3) How would you rate the quality and availability of CTE curriculum materials?
- 4) How important is it for CTE students to be involved in the student organization that corresponds to their CTE course of study?
- 5) What efforts are being made to encourage students to pursue a coherent sequence of CTE courses or Tech-Prep.
- 6) In what ways could TEA improve their responsiveness to your needs as a CTE administrator?
- 7) What efforts are being made to ensure CTE courses better prepare students for academic courses and TAKS?

Thank you for your cooperation. Your responses will be a valuable part of our evaluation.

APPENDIX F

DISTRIBUTION OF MATH AND READING/ELA TAKS RESULTS

2003 Math TAKS Results by CTE Status

		CTE STATUS			
		Non-CTE		CTE Program	
		N	% Passed	N	% Passed
7	ALL STUDENTS	169,530	73.1%	32,531	72.9%
	NAT. AMER.	547	70.9%	103	74.6%
	ASIAN	6,175	91.3%	1,123	89.5%
	BLACK	18,701	59.1%	4,014	59.3%
	HISPANIC	58,759	64.1%	11,169	64.2%
	WHITE	85,348	84.3%	16,122	84.5%
	ECO. DIS.	67,687	61.7%	13,404	62.0%
8	ALL STUDENTS	145,470	73.2%	50,761	71.2%
	NAT. AMER.	441	76.8%	157	74.1%
	ASIAN	5,715	90.6%	1,835	88.4%
	BLACK	15,865	57.5%	5,721	58.1%
	HISPANIC	47,170	63.5%	18,197	62.1%
	WHITE	76,279	84.9%	24,851	83.2%
	ECO. DIS.	53,299	61.1%	20,365	60.2%
9	ALL STUDENTS	102,615	67.2%	86,033	61.3%
	NAT. AMER.	298	71.6%	270	65.7%
	ASIAN	4,881	89.0%	3,003	84.6%
	BLACK	10,285	51.5%	9,879	47.6%
	HISPANIC	30,639	52.6%	30,007	51.9%
	WHITE	56,512	82.3%	42,874	74.2%
	ECO. DIS.	29,459	50.1%	32,626	50.1%
10	ALL STUDENTS	77,170	77.9%	99,989	70.9%
	NAT. AMER.	215	80.8%	289	76.1%
	ASIAN	3,698	91.9%	3,650	89.5%
	BLACK	7,827	63.3%	10,947	57.7%
	HISPANIC	21,292	65.5%	34,284	62.9%
	WHITE	44,138	88.4%	50,819	80.5%
	ECO. DIS.	19,424	63.0%	34,499	60.9%
11	ALL STUDENTS	47,807	74.9%	84,535	65.0%
	NAT. AMER.	142	78.0%	223	68.8%
	ASIAN	2,911	91.1%	3,476	84.8%
	BLACK	4,313	57.0%	8,364	49.9%
	HISPANIC	10,790	61.2%	26,234	56.5%
	WHITE	29,651	84.1%	46,238	74.0%
	ECO. DIS.	9,280	58.2%	24,519	54.2%

2004 Math TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7	ALL STUDENTS	168,047	70.9%	33,886	70.3%
	NAT. AMER.	568	74.0%	97	67.8%
	ASIAN	6,224	90.0%	1,260	89.1%
	BLACK	17,747	54.7%	4,042	54.3%
	HISPANIC	60,860	62.3%	12,100	61.3%
	WHITE	82,648	83.3%	16,387	84.3%
	ECO DIS	69,135	59.5%	14,432	59.3%
8	ALL STUDENTS	139,864	67.5%	47,725	64.7%
	NAT. AMER.	478	71.8%	161	64.9%
	ASIAN	5,604	88.0%	1,764	86.3%
	BLACK	13,732	49.2%	5,296	49.0%
	HISPANIC	45,214	57.0%	18,161	56.3%
	WHITE	74,836	80.7%	22,343	78.8%
	ECO DIS	50,072	54.1%	19,906	54.0%
9	ALL STUDENTS	96,616	62.4%	83,072	56.5%
	NAT. AMER.	323	66.6%	262	60.2%
	ASIAN	5,006	87.1%	2,880	83.1%
	BLACK	9,572	45.5%	8,983	41.4%
	HISPANIC	28,023	46.9%	28,802	46.6%
	WHITE	53,692	79.3%	42,145	70.8%
	ECO DIS	27,096	44.8%	31,706	44.9%
10	ALL STUDENTS	71,830	68.5%	93,505	61.2%
	NAT. AMER.	234	74.3%	280	64.7%
	ASIAN	4,104	88.8%	3,717	84.5%
	BLACK	6,953	49.7%	8,796	43.6%
	HISPANIC	18,407	52.9%	32,155	51.8%
	WHITE	42,132	82.4%	48,557	74.0%
	ECO DIS	16,802	50.0%	32,020	49.6%
11	ALL STUDENTS	60,934	88.4%	116,815	84.0%
	NAT. AMER.	212	94.6%	316	85.4%
	ASIAN	3,162	96.8%	3,953	94.0%
	BLACK	6,789	76.7%	12,866	72.6%
	HISPANIC	15,745	80.7%	40,571	78.9%
	WHITE	35,026	94.4%	59,109	90.4%
	ECO DIS	13,821	77.5%	38,838	76.8%

2005 Math TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7	ALL STUDENTS	153,378	63.7%	31,394	65.1%
	NAT. AMER.	532	68.7%	103	67.8%
	ASIAN	6,357	88.0%	1,435	89.7%
	BLACK	15,207	46.8%	3,483	46.6%
	HISPANIC	55,442	54.0%	11,277	56.7%
	WHITE	75,840	77.9%	15,096	78.9%
	ECO DIS	63,337	51.4%	13,112	53.0%
8	ALL STUDENTS	128,191	61.4%	45,796	59.9%
	NAT. AMER.	421	62.5%	142	62.3%
	ASIAN	5,507	86.6%	1,973	84.9%
	BLACK	12,721	43.8%	4,762	45.1%
	HISPANIC	42,778	50.7%	17,054	50.0%
	WHITE	66,764	75.5%	21,865	74.7%
	ECO DIS	48,183	48.0%	18,978	48.3%
9	ALL STUDENTS	94,271	59.4%	82,398	53.9%
	NAT. AMER.	328	63.0%	315	59.7%
	ASIAN	4,979	85.4%	2,851	80.1%
	BLACK	8,941	40.9%	8,127	36.9%
	HISPANIC	27,819	44.4%	29,986	44.6%
	WHITE	52,204	77.1%	41,119	69.0%
	ECO DIS	27,063	41.6%	33,156	42.6%
10	ALL STUDENTS	66,622	63.6%	87,990	56.1%
	NAT. AMER.	228	70.4%	288	63.0%
	ASIAN	3,913	86.0%	3,840	81.0%
	BLACK	6,116	42.8%	7,764	36.9%
	HISPANIC	16,515	47.2%	29,988	46.0%
	WHITE	39,850	78.9%	46,110	70.6%
	ECO DIS	15,447	43.9%	30,634	43.7%
11	ALL STUDENTS	59,796	84.4%	119,058	80.5%
	NAT. AMER.	169	86.2%	386	84.1%
	ASIAN	3,331	95.5%	4,579	92.7%
	BLACK	6,508	70.4%	12,568	67.2%
	HISPANIC	15,524	74.1%	42,151	73.8%
	WHITE	34,264	92.8%	59,374	89.0%
	ECO DIS	14,554	71.2%	41,270	71.7%

2006 Math TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7.0	ALL STUDENTS	170,925	70.3%	35,678	71.7%
	NAT. AMER.	640	77.8%	107	75.4%
	ASIAN	7,105	92.0%	1,426	89.9%
	BLACK	18,232	53.7%	4,427	54.4%
	HISPANIC	65,757	62.3%	13,752	65.2%
	WHITE	79,191	83.4%	15,966	84.9%
	ECO DIS	74,754	59.2%	16,071	61.2%
8.0	ALL STUDENTS	143,027	67.7%	52,052	65.9%
	NAT. AMER.	470	70.9%	176	70.1%
	ASIAN	6,227	90.8%	2,145	88.6%
	BLACK	14,834	50.4%	5,888	50.1%
	HISPANIC	50,731	58.5%	21,287	58.8%
	WHITE	70,765	80.7%	22,556	79.5%
	ECO DIS	57,239	55.7%	23,944	56.3%
9.0	ALL STUDENTS	96,028	59.1%	84,380	54.2%
	NAT. AMER.	356	64.6%	292	58.4%
	ASIAN	5,164	86.2%	3,109	82.2%
	BLACK	9,144	40.3%	8,455	36.0%
	HISPANIC	29,955	44.7%	32,203	46.0%
	WHITE	51,409	77.5%	40,321	69.6%
	ECO DIS	29,536	41.9%	35,540	43.6%
10	ALL STUDENTS	71,098	64.3%	95,108	59.3%
	NAT. AMER.	279	71.9%	340	68.4%
	ASIAN	4,082	86.5%	3,927	82.6%
	BLACK	6,726	43.0%	8,919	40.4%
	HISPANIC	19,613	50.6%	34,508	51.1%
	WHITE	40,398	79.2%	47,414	72.2%
	ECO DIS	18,690	46.8%	35,592	48.6%
11	ALL STUDENTS	59,538	81.2%	115,069	77.2%
	NAT. AMER.	206	90.4%	377	80.6%
	ASIAN	3,514	94.0%	4,656	91.1%
	BLACK	6,505	63.7%	11,980	61.0%
	HISPANIC	15,605	70.6%	41,153	70.5%
	WHITE	33,708	90.9%	56,903	86.8%
	ECO DIS	14,799	66.8%	40,674	67.8%

2003 Reading/ELA TAKS Results by CTE Status

		CTE STATUS			
		Non-CTE		CTE Program	
		N	% Passed	N	% Passed
7	ALL STUDENTS	202,619	87.7%	39,090	88.1%
	NAT. AMER.	691	89.4%	119	88.1%
	ASIAN	6,345	94.3%	1,168	93.4%
	BLACK	25,795	81.8%	5,558	82.9%
	HISPANIC	74,796	82.4%	14,318	83.1%
	WHITE	94,992	93.9%	17,927	94.1%
	ECO. DIS.	88,177	81.1%	17,610	82.3%
8	ALL STUDENTS	176,009	88.6%	62,552	87.7%
	NAT. AMER.	513	89.5%	193	92.8%
	ASIAN	6,006	95.5%	1,961	94.7%
	BLACK	22,739	82.4%	8,040	81.4%
	HISPANIC	61,615	83.3%	24,333	83.4%
	WHITE	85,136	94.5%	28,025	93.5%
	ECO. DIS.	71,278	82.0%	27,634	82.0%
9	ALL STUDENTS	128,470	83.5%	114,425	80.6%
	NAT. AMER.	375	89.5%	359	87.3%
	ASIAN	5,008	91.7%	3,178	89.8%
	BLACK	15,666	77.2%	15,817	75.3%
	HISPANIC	43,226	73.5%	43,311	74.0%
	WHITE	64,195	93.1%	51,760	88.6%
	ECO. DIS.	42,799	72.2%	48,259	73.1%
10	ALL STUDENTS	74,106	76.1%	96,584	70.0%
	NAT. AMER.	217	81.0%	272	73.3%
	ASIAN	3,378	85.8%	3,168	80.1%
	BLACK	8,041	66.3%	11,698	62.4%
	HISPANIC	20,245	64.8%	32,979	63.3%
	WHITE	42,225	84.9%	48,467	77.2%
	ECO. DIS.	18,364	61.9%	33,059	60.6%
11	ALL STUDENTS	44,880	74.8%	80,815	67.0%
	NAT. AMER.	130	75.6%	222	67.9%
	ASIAN	2,536	84.6%	3,047	79.8%
	BLACK	4,335	62.2%	8,984	58.4%
	HISPANIC	10,194	66.1%	25,221	61.9%
	WHITE	27,685	80.5%	43,341	71.8%
	ECO. DIS.	8,763	63.0%	23,762	59.5%

2004 Reading/ELA TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7	ALL STUDENTS	195,756	82.9%	39,632	82.5%
	NAT. AMER.	664	85.7%	125	86.2%
	ASIAN	6,370	92.5%	1,291	91.8%
	BLACK	23,662	73.1%	5,393	72.7%
	HISPANIC	74,459	76.8%	15,021	76.8%
	WHITE	90,601	91.3%	17,802	91.3%
	ECO DIS	86,281	74.7%	18,091	75.0%
8	ALL STUDENTS	185,368	89.5%	65,431	88.7%
	NAT. AMER.	620	92.8%	225	88.6%
	ASIAN	6,069	95.7%	1,935	95.3%
	BLACK	23,764	85.0%	9,184	85.1%
	HISPANIC	66,336	83.9%	27,032	84.1%
	WHITE	88,579	95.1%	27,055	94.7%
	ECO DIS	76,766	83.1%	30,650	83.4%
9	ALL STUDENTS	133,609	85.2%	124,634	83.2%
	NAT. AMER.	452	91.9%	395	88.2%
	ASIAN	5,380	93.7%	3,167	91.0%
	BLACK	16,923	78.5%	16,974	76.6%
	HISPANIC	46,431	76.6%	49,034	77.4%
	WHITE	64,423	94.3%	55,064	91.2%
	ECO DIS	46,430	75.5%	55,401	76.7%
10	ALL STUDENTS	84,090	78.9%	115,192	74.0%
	NAT. AMER.	255	77.5%	336	76.4%
	ASIAN	4,014	86.6%	3,745	84.7%
	BLACK	10,161	70.7%	13,973	68.0%
	HISPANIC	24,105	68.0%	42,319	66.9%
	WHITE	45,555	88.0%	54,819	82.0%
	ECO DIS	22,556	65.6%	43,168	65.4%
11	ALL STUDENTS	62,308	89.4%	121,491	86.3%
	NAT. AMER.	213	93.4%	333	87.2%
	ASIAN	3,043	93.2%	3,803	89.9%
	BLACK	7,533	83.7%	14,726	82.1%
	HISPANIC	16,205	81.8%	42,409	81.5%
	WHITE	35,314	94.4%	60,220	91.0%
	ECO DIS	14,410	79.4%	40,952	79.8%

2005 Reading/ELA TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7	ALL STUDENTS	193,691	80.7%	39,560	82.2%
	NAT. AMER.	662	84.5%	132	86.8%
	ASIAN	6,676	92.9%	1,474	92.9%
	BLACK	23,878	73.4%	5,510	73.7%
	HISPANIC	74,148	72.7%	14,930	75.6%
	WHITE	88,327	90.6%	17,514	91.4%
	ECO DIS	88,101	71.8%	18,191	74.0%
8	ALL STUDENTS	174,379	83.3%	63,541	82.9%
	NAT. AMER.	590	86.4%	203	86.4%
	ASIAN	5,807	91.7%	2,122	91.5%
	BLACK	22,837	78.3%	8,325	78.5%
	HISPANIC	63,173	75.1%	25,621	75.4%
	WHITE	81,972	92.2%	27,270	92.4%
	ECO DIS	74,844	74.6%	29,526	75.2%
9	ALL STUDENTS	133,481	83.2%	125,669	80.7%
	NAT. AMER.	454	87.1%	469	87.2%
	ASIAN	5,345	91.7%	3,144	88.6%
	BLACK	16,664	74.6%	16,536	73.0%
	HISPANIC	47,162	74.3%	51,069	74.6%
	WHITE	63,856	93.5%	54,451	90.0%
	ECO DIS	47,785	72.3%	58,466	73.6%
10	ALL STUDENTS	75,851	71.0%	105,528	65.8%
	NAT. AMER.	240	71.6%	354	74.5%
	ASIAN	3,783	82.6%	3,748	78.7%
	BLACK	8,897	60.7%	12,451	57.4%
	HISPANIC	21,606	60.0%	39,646	59.3%
	WHITE	41,325	80.7%	49,329	74.1%
	ECO DIS	20,889	57.5%	41,553	57.7%
11	ALL STUDENTS	64,301	89.7%	131,756	87.8%
	NAT. AMER.	187	93.0%	403	87.2%
	ASIAN	3,295	94.1%	4,600	92.8%
	BLACK	7,993	84.7%	16,102	84.5%
	HISPANIC	17,495	81.7%	48,039	82.7%
	WHITE	35,331	95.1%	62,612	92.7%
	ECO DIS	16,800	80.3%	47,957	81.6%

2006 Reading/ELA TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7	ALL STUDENTS	191,522	78.9%	39,737	79.8%
	NAT. AMER.	699	84.6%	115	81.0%
	ASIAN	7,065	92.1%	1,436	90.8%
	BLACK	23,506	69.2%	5,633	69.1%
	HISPANIC	74,959	71.3%	15,491	73.7%
	WHITE	85,293	89.6%	17,062	90.4%
	ECO DIS	87,404	69.4%	18,611	71.1%
8	ALL STUDENTS	178,446	84.0%	65,782	82.9%
	NAT. AMER.	598	88.6%	222	85.7%
	ASIAN	6,418	94.0%	2,204	91.2%
	BLACK	22,636	76.3%	9,134	77.0%
	HISPANIC	66,639	76.8%	27,790	76.7%
	WHITE	82,155	92.9%	26,432	92.4%
	ECO DIS	77,927	75.6%	32,374	75.9%
9	ALL STUDENTS	144,884	87.8%	138,585	87.1%
	NAT. AMER.	527	92.9%	466	92.5%
	ASIAN	5,640	94.5%	3,499	92.5%
	BLACK	19,258	82.7%	19,778	81.8%
	HISPANIC	55,093	80.7%	58,997	82.4%
	WHITE	64,366	96.1%	55,845	94.4%
	ECO DIS	57,583	79.9%	68,918	82.2%
10	ALL STUDENTS	97,248	86.2%	139,179	84.6%
	NAT. AMER.	374	91.4%	450	87.2%
	ASIAN	4,425	93.4%	4,363	91.3%
	BLACK	12,776	79.1%	17,867	78.1%
	HISPANIC	31,012	78.0%	55,347	80.0%
	WHITE	48,661	93.9%	61,152	91.1%
	ECO DIS	31,368	76.3%	59,282	78.6%
11	ALL STUDENTS	66,891	89.8%	133,774	88.2%
	NAT. AMER.	219	92.0%	444	91.9%
	ASIAN	3,536	94.5%	4,783	93.6%
	BLACK	8,835	84.4%	16,865	84.0%
	HISPANIC	18,565	82.0%	49,570	83.3%
	WHITE	35,736	95.6%	62,112	93.2%
	ECO DIS	18,208	79.9%	50,291	82.0%

2006 Reading/ELA TAKS Results by CTE Status

		CTE STATUS			
		NON CTE		CTE PROGRAM	
		N	% Passed	N	% Passed
7	ALL STUDENTS	191,522	78.9%	39,737	79.8%
	NAT. AMER.	699	84.6%	115	81.0%
	ASIAN	7,065	92.1%	1,436	90.8%
	BLACK	23,506	69.2%	5,633	69.1%
	HISPANIC	74,959	71.3%	15,491	73.7%
	WHITE	85,293	89.6%	17,062	90.4%
	ECO DIS	87,404	69.4%	18,611	71.1%
8	ALL STUDENTS	178,446	84.0%	65,782	82.9%
	NAT. AMER.	598	88.6%	222	85.7%
	ASIAN	6,418	94.0%	2,204	91.2%
	BLACK	22,636	76.3%	9,134	77.0%
	HISPANIC	66,639	76.8%	27,790	76.7%
	WHITE	82,155	92.9%	26,432	92.4%
	ECO DIS	77,927	75.6%	32,374	75.9%
9	ALL STUDENTS	144,884	87.8%	138,585	87.1%
	NAT. AMER.	527	92.9%	466	92.5%
	ASIAN	5,640	94.5%	3,499	92.5%
	BLACK	19,258	82.7%	19,778	81.8%
	HISPANIC	55,093	80.7%	58,997	82.4%
	WHITE	64,366	96.1%	55,845	94.4%
	ECO DIS	57,583	79.9%	68,918	82.2%
10	ALL STUDENTS	97,248	86.2%	139,179	84.6%
	NAT. AMER.	374	91.4%	450	87.2%
	ASIAN	4,425	93.4%	4,363	91.3%
	BLACK	12,776	79.1%	17,867	78.1%
	HISPANIC	31,012	78.0%	55,347	80.0%
	WHITE	48,661	93.9%	61,152	91.1%
	ECO DIS	31,368	76.3%	59,282	78.6%
11	ALL STUDENTS	66,891	89.8%	133,774	88.2%
	NAT. AMER.	219	92.0%	444	91.9%
	ASIAN	3,536	94.5%	4,783	93.6%
	BLACK	8,835	84.4%	16,865	84.0%
	HISPANIC	18,565	82.0%	49,570	83.3%
	WHITE	35,736	95.6%	62,112	93.2%
	ECO DIS	18,208	79.9%	50,291	82.0%

APPENDIX G:
REGRESSION COEFFICIENT TABLES FOR MATH AND READING

2003 TAKS READING

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	68.092	.028		2431.907	.000
	Hispanic	-5.344	.034	-.144	-155.418	.000
	BLACK	-6.777	.044	-.130	-155.445	.000
	eco	-5.058	.033	-.139	-155.633	.000
	CTE_AT_ALL	-2.693	.030	-.074	-90.782	.000
	MIDSCH	15.641	.030	.434	528.992	.000

a. Dependent Variable: READPERC

2003 MATH TAKS

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	66.310	.033		2007.732	.000
	HISPANIC	-9.065	.040	-.223	-224.089	.000
	BLACK	-12.404	.051	-.216	-241.409	.000
	ECO DIS	-7.075	.038	-.177	-185.029	.000
	CTE	-3.107	.035	-.078	-89.029	.000
	MIDSCH	2.550	.035	.064	73.155	.000

a. Dependent Variable: MATHPERC

2004 TAKS READING

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	86.278	.028		3038.526	.000
	BLACK	-6.849	.041	-.132	-165.518	.000
	HISPANIC	-5.816	.032	-.159	-179.729	.000
	ECO DIS	-5.131	.031	-.142	-167.718	.000
	CTE	-1.616	.027	-.045	-60.281	.000
	HIGH SCH	-21.393	.028	-.567	-751.977	.000

a. Dependent Variable: READPERC

2004 MATH TAKS[®]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	73.803	.038		1952.179	.000
	BLACK	-13.786	.055	-.234	-249.199	.000
	HISPANIC	-9.804	.043	-.237	-226.639	.000
	ECO DIS	-7.208	.041	-.176	-176.162	.000
	CTE	-2.220	.036	-.055	-62.034	.000
	HIGH SCH	-2.708	.038	-.063	-71.460	.000

a. Dependent Variable: MATHPERC

2005 READING TAKS[®]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	70.727	.026		2751.632	.000
	BLACK	-5.693	.041	-.117	-138.727	.000
	HISP	-5.445	.032	-.160	-170.828	.000
	ECODIS_AT_ALL	-4.601	.030	-.137	-153.305	.000
	CTE_AT_ALL	-1.709	.026	-.051	-64.546	.000
	MID	16.762	.028	.475	597.124	.000

a. Dependent Variable: READPERC

2005 MATH TAKS[®]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	73.420	.034		2178.493	.000
	BLACK	-13.453	.054	-.231	-249.168	.000
	HISPANIC	-9.585	.042	-.236	-228.860	.000
	ECO DIS	-7.475	.039	-.186	-189.407	.000
	CTE	-1.596	.035	-.040	-45.920	.000
	MID SCH	1.681	.037	.040	45.726	.000

a. Dependent Variable: MATHPERC

2006 READING TAKS

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	72.685	.024		3021.489	.000
	BLACK	-5.422	.038	-.122	-143.816	.000
	HISPANIC	-4.797	.029	-.153	-162.855	.000
	ECO DIS	-4.150	.028	-.134	-150.372	.000
	CTE	-1.283	.025	-.041	-52.211	.000
	MID SCH	14.848	.026	.456	573.501	.000

a. Dependent Variable: READPERC

2006 MATH TAKS^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	74.046	.033		2234.114	.000
	BLACK	-13.653	.052	-.241	-261.948	.000
	HISPANIC	-8.793	.041	-.219	-216.162	.000
	ECO DIS	-7.375	.038	-.186	-193.332	.000
	CTE	-.969	.034	-.025	-28.575	.000
	MID SCH	3.718	.036	.090	104.351	.000

a. Dependent Variable: MATHPERC