

Career and Technical Education Program Evaluation Series

Issue 1: College Readiness and Cost-effectiveness

How should the success of the Career and Technical Education (CTE) program be measured?

The CTE program provides opportunities for students to acquire 21st century academic and technical skills needed for entry into the global workforce and/or postsecondary education. At first sight, it appears that the success of the CTE program could be measured by comparing the percentage of CTE graduates with the percentage of non-CTE graduates participating in the workforce or enrolled in a postsecondary educational institution. However, graduates obtaining employment or enrolling in a college or career school could confront obstacles that have nothing to do with the effectiveness of the CTE program. As such, this first issue in the evaluation series compares the college and career readiness of 2009–2010 CTE concentrators with that of all other (non-CTE) seniors.

A state college readiness standard was developed in response to the 79th Texas Legislature passing House Bill 1, Advancement of College Readiness in Curriculum. The goal of the bill was to increase the number of Texas students who graduated college and career ready. The state standard equates college readiness to career readiness because research shows that more than 80% of 21st century jobs require some postsecondary education.¹ No standard currently exists to measure career-readiness specifically, although discussions about developing such a standard are underway at a national level.² In the absence of a career-readiness standard, the state's measure of college and career readiness is used to determine the success of CTE.

Of the 3,959 seniors in 2009–2010 with both a CTE indicator and college-readiness data available, 2,218 (56.0%) were college ready.

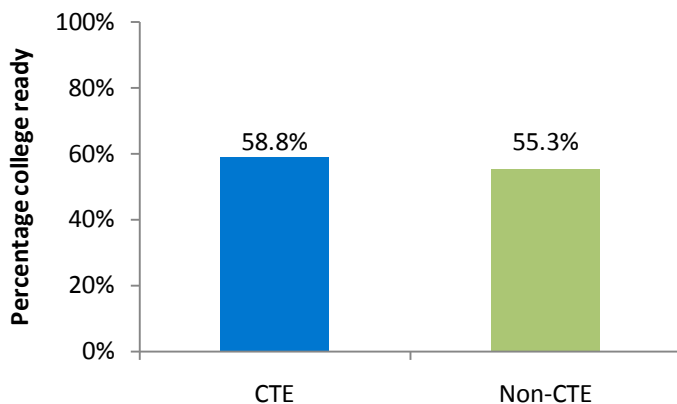
CTE Concentrators

The seniors in this study were considered CTE concentrators if during their senior year they took an upper level course in a CTE sequence of two or more courses for three or more credits, or if they followed such a sequence and it included a Tech Prep course (i.e., with articulated credit at the postsecondary level). Taking an upper level CTE/Tech Prep course resulted in these students being categorized as a CTE level 2 or 3. CTE concentrators were chosen as a unit of study for CTE program evaluation because the sequential course of study provided them with a foundation for a career, as opposed to CTE level 1 students, who took random CTE courses, or CTE level 0 students, who did not take any CTE courses their senior year. Any seniors not identified as level 2 or 3 were considered non-CTE.

Who was included in the college readiness analysis?

In Spring 2010, 4,292 active seniors were enrolled. Of these, 3,959 (92%) had a CTE indicator in the state data table; available Texas Assessment of Knowledge and Skills (TAKS) scores in English language arts (ELA), composition, and math; and/or SAT or American College Test (ACT) scores. Of the 3,959, 864 (21.8%) were CTE concentrators.

No significant difference existed between the college readiness of CTE and of non-CTE seniors.

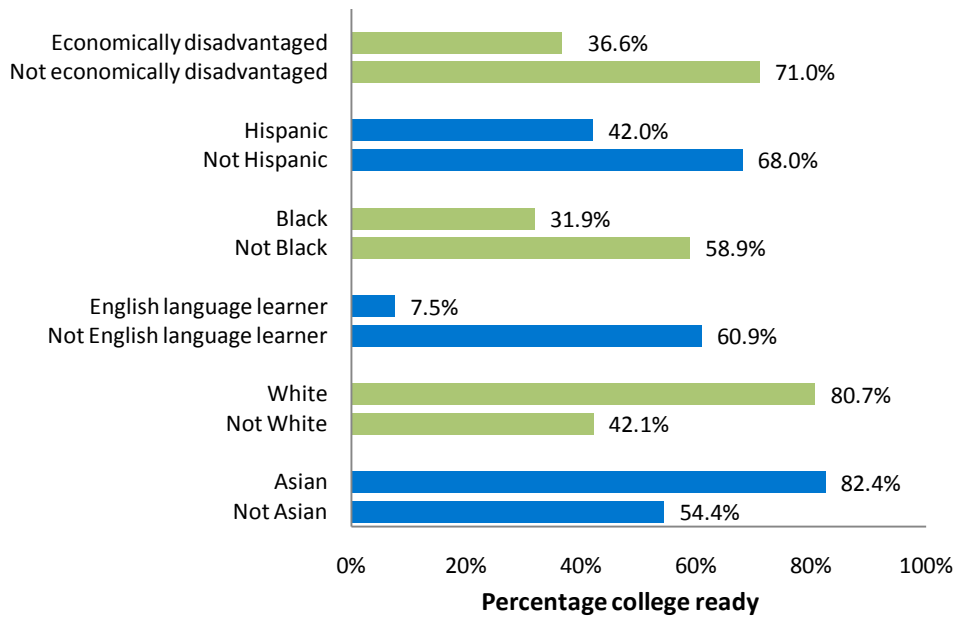


Source. AISD student course enrollment and test files prepared by DPE

¹ See [Texas College and Career Readiness Standard](#)

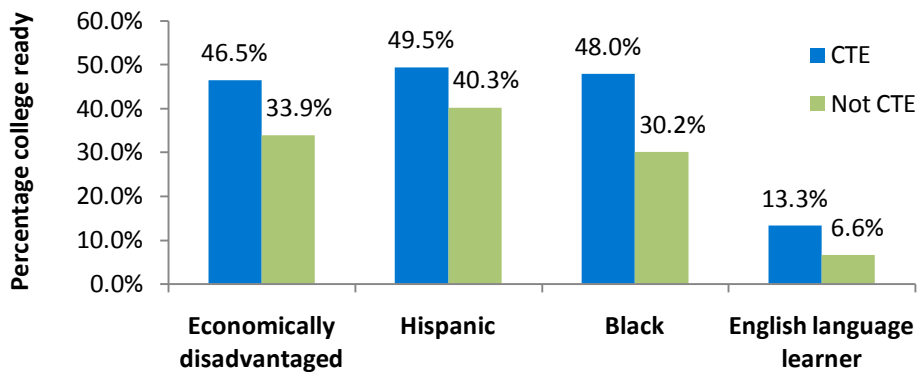
² See [Association for Career and Technical Education article](#)

Across the district, significant gaps in college readiness existed for various student groups.*



Source: AISD student demographic and test files prepared by DPE
 * All AISD 2009–2010 seniors were included in the analysis.

Among student groups that had a low percentage of seniors meeting the college readiness standard, a significantly higher percentage of seniors who participated in CTE than of seniors who did not participate met the standard.



Source: AISD student demographic, course, and test files prepared by DPE
 Note: A significantly higher percentage of CTE seniors were economically disadvantaged (54%) and Hispanic (59%) compared with non-CTE seniors (43% and 46% respectively). No significant difference existed in college readiness based on student gender or special education status and CTE participation.

What do these results mean?

Do these results mean that CTE caused a higher percentage of the students in the demographic groups listed in the figure to become college ready? Although that is possible, it also is possible that higher-achieving students in these groups were drawn to CTE. Until further analysis becomes available, we only can say that a higher percentage of seniors in these demographic groups who participated in CTE were college ready, compared with their counterparts who did not participate in CTE. A relationship existed between the college readiness of these groups and CTE participation, but the nature of that relationship is unknown.

What is the college readiness standard?

According to the standard defined in the state’s Academic Excellence Indicator System glossary, to be considered college ready in **English**, a student must

- obtain a 2200 scale score or higher on the ELA TAKS test and a 3 or higher on the composition; **OR**
- achieve a score of at least 500 on the English portion of the SAT, with a composite score of at least 1070; **OR**
- score at least a 19 on the English portion of the ACT, with a composite score of at least 23.

To be considered college ready in **math**, a student must

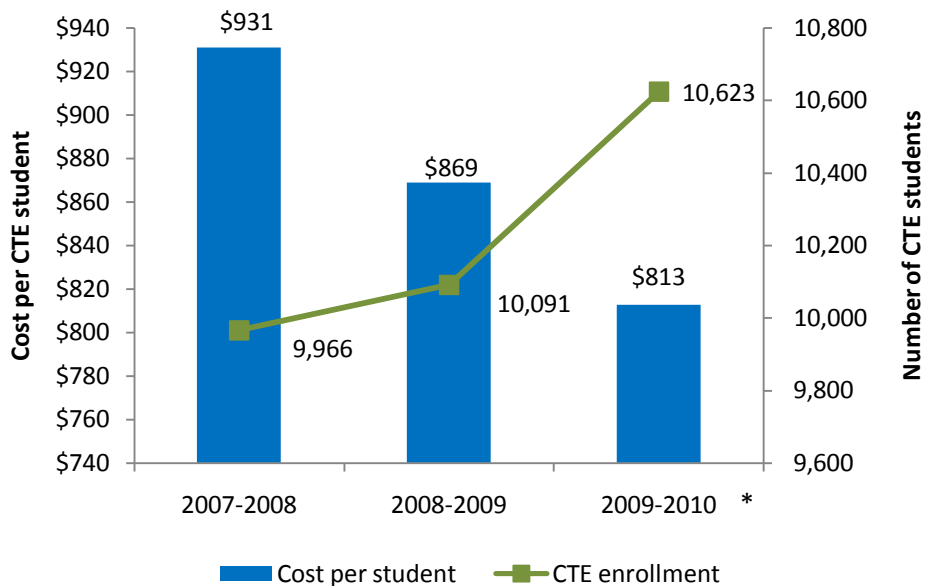
- achieve a scale score of at least 2200 on the math TAKS; **OR**
- achieve a score of at least 500 on the math portion of the SAT, with a composite score of at least 1070; **OR**
- achieve a score of at least 19 on the math portion of the ACT, with a composite score of at least 23.

For this report, only seniors college ready in both English and math were deemed college ready.

Is the CTE program cost-effective?

The CTE program budget decreased 7.0% from 2007–2008 to 2009–2010, from \$9.28 million to \$8.63 million. However, student enrollment in the program increased 6.6% over the same period.

The cost per CTE student per year decreased, while CTE enrollment increased.



Source. AISD CTE program budgets and student enrollment data prepared by DPE
 Note. To calculate cost per CTE student, all CTE students (codes 1, 2, and 3) were included. The 2009-2010 cost per student without ARRA funds was \$793.

The **unit of effectiveness** used for the cost-effectiveness analysis was the college readiness of 2010 seniors who were CTE concentrators. The costs included average per student costs for 3 school years. Of the 512 CTE seniors in CTE for 3 years, 288 (56.3%) were college ready.

The cost of educating each of the 512 CTE seniors over the 3 years was \$2,612. However, the per student cost of getting the “effect” of college readiness was \$4,644.

Generally, cost-effectiveness analyses compare similar programs with similar-sized budgets to guide decision makers. Without another CTE program to compare to AISD’s, the per student cost-effectiveness results may be used as a baseline against which to compare cost-effectiveness in future years.

Cost-effectiveness analysis: Notes about CTE budgets and methodology

Three years of CTE program budgets were used to calculate the cost per CTE student and cost-effectiveness, and included the following funding sources:

- Local 199 funds (state funds that go to the district for CTE)
- Carl D. Perkins grant (federal funding for CTE programs)
- Tech Prep (state program funds)
- Rio Grande (funds from the sale of an AISD campus to ACC)
- E3 Alliance (\$8,000 in grant funds in 2008–2009)
- American Recovery and Reinvestment Act (ARRA) funds of \$202,559 in 2009–2010 for Eastside Memorial Green Tech

Only CTE concentrators who were enrolled in the district and were CTE students their last 3 years of high school were included in the analysis, resulting in the inclusion of 512 of the 864 CTE seniors (59%).

To calculate the cost per student, the total number of CTE students that year was divided into the corresponding year’s budget. The three years of per student costs were added to get a single per student cost. For the cost-effectiveness analysis, the per student cost was multiplied by 512 to get a total cost of serving all the CTE concentrators who took at least one CTE course during their sophomore, junior, and senior years. That total was divided by the 288 who were college ready, resulting in the cost of producing one college-ready CTE concentrator.

Funding sources. Funding for the development of this report was provided by the CTE program.

Uses of report results. The district and the CTE administration may use report findings to inform educational services and instruction. This report helps to monitor outcomes related to **Goal 3 of the district's Strategic Plan:** All students will graduate college and career ready.

About the Department of Program Evaluation. The Department of Program Evaluation (DPE) was established in 1972 to support program decision making and strategic planning in AISD. The department is housed in the Office of Accountability and is charged with evaluating federal, state, and locally funded programs in AISD. DPE staff pride themselves on integrating best and innovative evaluation practices with educational and institutional knowledge. DPE works with program staff throughout the district to design and conduct formative and summative program evaluations. DPE's methods for evaluating programs vary depending on the research question, program design, and reporting requirements. The evaluations report objectively about program implementation and outcomes, and serve to inform program staff, decision makers, and planners in the district. DPE also responds to information needs at all levels. DPE reports may be accessed online at <http://www.austinisd.org/inside/accountability/evaluation/reports.phtml>

About the author. Carol Pazera joined the DPE team in Spring 2009 and focuses on programs implemented for students at the middle and high school levels. Carol has specialized in program evaluation for more than a decade. Throughout her career, she has assisted numerous nonprofit organizations in the development of evaluation processes and instruments. She also co-founded and led an agency that served high school students in Austin who were at risk of dropping out of school. Carol earned a B.A. in secondary education from the University of Illinois at Champaign-Urbana, and an M.A. in Latin American Studies and an M.S. in Community and Regional Planning from the University of Texas at Austin. She has been a member of the American Evaluation Association since 2005.

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