

Facts about Academic Success, Drop-Out Rates, and Career Technical Education

by Seth P. Bates

Professor, Manufacturing and Materials Technology

President-Elect, California Industrial and Technology Education Association and Foundation

College of Engineering, Aviation and Technology Dept.

San José State University, San Jose CA 95192-0061

408 924-3227 (home: 831 373-0430)

sbates@sjsu.edu

The following three summaries describe findings from three independent agencies regarding the success of students who have and have not completed a course of study in Career Technical Education, followed by the Definition of CTE adopted by CITEA Foundation, which is based largely on the Federal definition of CTE from the Carl Perkins Act.

I. From a presentation by Pat Ainsworth, Deputy Superintendent of Public Instruction, California Department of Education:

- There were 914,568 secondary students enrolled in 2004-05, with a dropout rate of about 30%
- There were 213,860 adult students enrolled in ROCP and Adult Education CTE courses
- Records show that 84% of Career Technical Education students taking a sequence of courses graduated [*meaning of course that the dropout rate for these students is about 16%*]
- Enrollments in high school CTE courses declined 15% from 1997-98 to 2004-05. this continues a decline in the availability of CTE for California's students that began in about 1978. [*Currently, estimates are that California has lost over 80% of its CTE programs, compared to what was available in 1978.*]

II. From a research study undertaken by the Southern Regional Board of Education, and described in their paper, "Facts About High School Career/Technical Studies":

Dropout/truancy benefits

- High-risk students are eight to 10 times less likely to drop out in the 11th and 12th grades if they enroll in a career/technical program rather than a general program.
- A quality career/technical program can reduce a school's dropout rate by as much as six percent.
- Career/technical students are less likely than general-track students to fail a course or to be absent.

Academic Benefits

Career/technical teachers who often require students to use academic knowledge and skills in completing assignments increase students' chances of meeting the High Schools That Work (HSTW) reading, mathematics and science performance goals by seven to 10 percent (2000 High Schools That Work Assessment).

Students who complete the HSTW recommended academic core and a career concentration:

- have average reading, mathematics and science scores that equal or exceed those of college-preparatory students on the HSTW Assessment;
- continue their studies after high school at a higher rate than students who do not complete an upgraded academic core and a concentration; and
- have a higher grade point average in college and are more likely than other high school graduates to remain in college throughout the first year.

III. Governor Schwarzenegger's California Performance Review (CPR) project identified the following:

The student pipeline begins with high school. High school graduation is a critical step towards joining the skilled labor force needed by the new economy. Unfortunately, many high school students do not make it to graduation. Statewide, a full 30 percent of those who enter California's high school in ninth grade do not graduate. Enrollment data provided by the Department of Education show that the number of students declines each year after ninth grade, and that only 70 percent of the former ninth-graders graduate four years later. This puts California in 30th place relative to the other 50 states for proportion of students who graduate from high school.[\[30\]](#)

Students who do not complete high school have far fewer employment opportunities, earn less, experience more unemployment, and are more likely to end up in the correctional system than those who complete high school.[\[31\]](#) *Youth unemployment is a costly problem in California, where the youth unemployment rate is 18.8 percent, nearly three times the general unemployment rate.*[\[32\]](#) *As pointed out by the federal General Accounting Office, the social and economic costs of not graduating from high school include an underskilled labor force, lower productivity, lost taxes, increased public assistance and crime.*[\[33\]](#) *The consequences of failing to obtain a high school diploma are severe to both the individuals themselves and to society and the economy at large.*

Why do students fail to complete high school? There is no single answer to this question, and no single solution, but career technical education is a key part of the following research:

- *A survey of effective school programs to reduce dropouts found they commonly used a jobs and career focus, using courses that led directly to jobs and including internships and apprenticeships.*[\[34\]](#)
- *The Southern Regional Education Board reported that high-risk students are eight to ten times less likely to drop out in the 11th or 12th grade if they enroll in a career technical program rather than a general program.*[\[35\]](#)

Career technical courses and work-oriented programs have been reduced as California's high schools have shifted their emphasis towards the academic course of study required for UC and CSU admission, the "a-g" requirements. California Department of Education data show a 26 percent decline in CTE enrollments since 1987-88.[\[36\]](#) *An unintended consequence of this shift to a university preparation curriculum has been to reduce the career-oriented courses most attractive to students at risk of dropping out. Continued movement towards the "a-g" requirements is likely to increase the number of students who fail to graduate from high school.*

California cannot continue to have a vigorous economy without improving its high school graduation rate. The majority of jobs in the California labor market require education and training beyond the high school level, and this proportion is expected to increase over the decades to come.[\[37\]](#) *These skilled jobs are in a range of industries in the California economy, and are not only those jobs for which a bachelor's degree is needed.*

Definition: The CITEA definition of CTE, drawn primarily from the federal definition and from current practice:

Career-Technical Education is organized educational programs offering sequences of courses directly related to preparing individuals for employment in current or emerging occupations requiring other than a baccalaureate or advanced degree.

The essential test of whether or not a course of study is Career-Technical Education is found in whether or not the course provides entry-level preparation for a career that is essentially technical in nature, and that does not require a postsecondary or advanced degree.

These work force preparation programs include subjects in industrial and technology education, business education, agriculture, medical occupations, etc. They provide a variety of instructional strategies including competency-based applied learning that contributes to an individual's occupational-specific skills, higher-order reasoning, problem solving skills, and academic knowledge necessary for economic independence as a productive and contributing member of society and prepare participants for both postsecondary education and employment.

Adopted by CITEA Foundation, June 10, 2006

Synthesis:

- Many students will not finish high school. The numbers are staggering: In addition to the reported 30% dropout rate during grades 9-12, there is a poorly documented but well recognized loss of students between middle schools and high schools. The California Legislative Analysts Office (LAO) reports that this may be as many as 15 to 25% of students who were enrolled in the middle schools (*CTE Summit, San Bernardino, CA, October 14th, 2005*). Thus somewhere between 45 and 55% of all California students fail to finish high school.
- A student's chances of graduating increase if they enroll in CTE programs. [We can guess that this is because CTE programs are relevant and connected to the real lives they will live after high school. CTE courses also use academics in real world ways, applying science and mathematics to build the skills and knowledge needed for success in many technical careers. Such conjectures require further study.]
- The chances of a student finding and succeeding in a well-paying career increase dramatically if the student enrolls in CTE programs during high school.
- California has already lost the vast majority of its CTE programs in the state (80-plus percent since 1978) due to fiscal and administrative neglect, as well as pressures to meet the demands of No Child Left Behind and to improve school API scores. The competition for scant resources has lead many administrators to take resources (labs and facilities, monies, and teachers) away from CTE programs and use them to build remedial programs and for other purposes, in spite of the evidence that such programs would help the problems of academic performance AND drop out rates.
- California State law requires the schools to provide BOTH academic programs leading to preparation for postsecondary education AND programs to prepare students for careers after high school, to all students. (*see Resources, below*)
- Due to the loss of CTE programs, the school systems are currently probably in violation of California Education codes 51224 and 51228 (*see Resources, below*). Many schools have closed every CTE course and program completely, while most have retained some skeletal remnant of what they used to offer. A very few schools remain strongly committed but are feeling continuing pressure to close their programs to use the resources elsewhere. The number of schools that can say they are meeting the requirements of the ed code with respect to career preparation is close to zero.

Resources:

Education Code Section 51224.

The governing board of any school district maintaining a high school shall prescribe courses of study designed to provide the skills and knowledge required for adult life for pupils attending the schools within its school district. The governing board shall prescribe separate courses of study, including, but not limited to, a course of study designed to prepare prospective pupils for admission to state colleges and universities and a course of study for career technical training.

-- AND--

Education Code Section 51228.

(a) Each school district maintaining any of grades 7 to 12, inclusive, shall offer to all otherwise qualified pupils in those grades a course of study fulfilling the requirements and prerequisites for admission to the California public institutions of postsecondary education and shall provide a timely opportunity to each of those pupils to enroll within a four-year period in each course necessary to fulfill those requirements and prerequisites prior to graduation from high school.

(b) Each school district maintaining any of grades 7 to 12, inclusive, shall offer to all otherwise qualified pupils in those grades a course of study that provides an opportunity for those pupils to attain entry-level employment skills in business or industry upon graduation from high school. Districts are encouraged to provide all pupils with a rigorous academic curriculum that integrates academic and career skills, incorporates applied learning in all disciplines, and prepares all pupils for high school graduation and career entry.