



The California Industrial and Technology Education Association and Foundation
P.O. Box 729, Diamond Springs, CA 95619-0729 – www.citea.org

Career Technical Education: Problems and Solutions

A Position Paper: California Industrial and Technology Education Association and Foundation

California's school system is broken. Parents, legislators, school and district administrators, parents, industry, and even students agree. They see the failure of our education system in many ways: the high need for remediation in all grades, the high rate of drop outs, the poor performance of students who enter 2- and 4-year colleges, and the low ranking of California's schools in national comparisons. This is more than a system that is broken: this is a story of tragic loss of opportunity and social injustice; in the failure of our public schools to meet the needs of all students in the system.

Our schools were not always broken. Two decades and more ago, California's schools were considered among the best in the nation. At that time California's schools offered nearly universal access to Career Technical Education – then called Vocational-Technical education and consisting of Industrial Arts, Agricultural Education, and Home Economics. Nearly every public school offered a comprehensive curriculum of both academics and technology education up until about 1980.

Widespread loss of CTE delivery systems. Today these programs have almost disappeared from California's schools. A study in the late 1990s showed that we had already lost over 75% of our CTE delivery system at that time; and that process has continued unabated. A 2001 study of technical education in Silicon Valley - an industry-rich area of the state - showed that over 20% of the area's remaining high school programs in manufacturing and related technologies had been closed in only a four year period.

Legislators and policy makers are concerned, noting increasing dropout rates and the poor academic performance of our students. They are beginning to see that Career Technical Education offers students many things not part of the current educational system, including an understanding of technology and of the connection between school and careers, relevance to the world outside the school, the opportunity to succeed via a wide range of educational and career options; and ways of learning that engage the mind and the body – that stimulate the imagination and build confidence by showing students what they can do with their hands and their minds.

Career Technology Education is a proven system with a long history of success – but it is not even part of the current educational system in most schools and districts. Some are suggesting that we need to make radical changes in CTE, but in fact CTE is a highly developed set of curricula that is older than the public school system, with rich content and strong connections to the real world: the world of work. It has a proven track record. It needs to be reinstated and rebuilt, plain and simple. Once it is back in place and serving students we will certainly take a close look at ways to improve the entire system. However, if anything needs fixing today, it is the current model of education, including the way in which academics are being taught, the way we assess performance of schools, the notion that every student can and should be prepared for college, and the inappropriate and skewed way in which the University of California A-G requirements and other graduation requirements have been allowed to narrow the high school curriculum.



The **California Industrial and Technology Education Association and Foundation** was founded in 1929 as an association of Industrial Technology Education teachers, administrators, and teacher education faculty. Now in its 78th year, CITEA has been consistently led by ITE teachers and administrators from the field, and by the faculty who prepare credentialed teachers for Industrial and Technology Education (ITE).

In this paper CITEA Foundation has identified the major problems relating to Career Technical Education in the schools, and appropriate solutions to those problems. This paper reflects CITEA studies and analysis over the ten years since the release of the “*Building for Tomorrow: the ITE Task Force Report*” (1997) by the California Department of Education. That report was commissioned by Superintendent of Public Instruction Delaine Eastin. CITEA leaders were deeply involved with the development of that study, and its recommendations remain valid today.

http://www.citea.org/images/resources/Building_for_Tomorrow.pdf

Problems

- **The schools of California are broken: they no longer offer a comprehensive curriculum including Career Technology Education courses or programs to the vast majority of students.** The curriculum has narrowed and become less relevant. Career Technology Education is not part of this problem as it is not currently offered in most schools. Rather, the loss of CTE is one major part of the problem with the schools. This is particularly true of courses that prepare students for the industrial sector careers, which require hands-on technical education based on current industrial practices and the tools of those industries. Some educators have also suggested that current teaching approaches in academic subjects may need review, as many learners require different approaches to learning than are typically offered in such classes. The results of this breakdown in the system are widespread and profound, ranging from poor academic achievement to escalating drop-out rates.
- **The vast majority of students in our K-12 Educational System no longer have the option to select and take courses in CTE at any grade level.** This is true because the programs no longer exist, are in competition for academic and remediation courses, and are not considered part of the basic education of all students.
- **The schools of California have largely abandoned education approaches that are based on the needs of the workplace and the students’ needs after high school.** While the California State Education Code requires that schools prepare ALL students for both careers and postsecondary education, one half of that mandate is ignored in most schools. As a result, active learners’ needs are not met and half or more of all students leave high school with no preparation for the world of work that they will enter.
- **The schools of California no longer know what CTE is and are looking in the wrong places for that answer** – because the programs in CTE have been absent from the K-12 curriculum for so long, there is widespread misunderstanding of the methods, purposes, and curriculum models of CTE across the state, by school administrators, academic teachers, and consultants in education. Educators and administrators need to pay close attention to the system they have abandoned, and the experts who used to prepare teachers for those fields, for accurate information about how CTE should be delivered.
- **The instructional facilities for CTE have been lost or converted to other purposes.** CTE facilities are mostly specialized labs or shops requiring specific utilities, strong foundations, and configurations for industrial equipment for the various technical areas of study. These facilities have been converted to weight training rooms, study halls, computer labs, ordinary classrooms, and other purposes by school administrators after closing their CTE programs, and without regard to the cost of rebuilding.
- **Teacher supply in CTE is not adequate to meet current or anticipated demand.** Due to the lack of high school programs that will stimulate interest in teaching in the CTE curriculum areas, and due to the fact that the California State University does not allow admissions credit for courses in CTE subjects, very few students are seeking entry into teacher credentialing programs in these areas. While the California State University still offers Single Subject CTE credential programs that would be able to meet most or all of the anticipated need, hardly any students are entering those programs and nothing is being done at the State level to address this problem.



- **Public acceptance of Career Technical Education programs, and the careers they prepare students for, is very low.** School administrators, university academics, counselors, and even teachers have established and maintained a very low regard for such critical careers as auto mechanic, precision machinist, electrician, plumber, and many others on which much of the state and local economies are based. This attitude toward the trades affects students as well.
- **Students in public schools are provided only a single vision of possible futures – all high school outcomes lead to college.** This in spite of the fact that over one half of all students will not go to college, and that only 25% of careers, now and in the future, will require college degrees. One result of this is that students who do not expect to go to college feel disenfranchised and underserved by their schools.

Solutions

- **CTE needs to be reinstated in every public school in California, and must be a graduation requirement at the middle school and high school levels.** State data show that in spite of the attention and positive press CTE has received over the past six years, including support from the Governor, the Superintendent of Public Instruction, and many legislators, the decline and closures of CTE programs is continuing and even accelerating. Given the needs of our students and our economy, and the facts dictating curriculum in grades 7-12, it is clear that CTE will not be restored until it is required, funded, and included in outcomes assessment measures at every middle school and high school in the state.
Every student needs access to CTE courses, programs, and curricula, from elementary school enrichment curricula, to middle school career exploration and technology core programs, to high school introductory and advanced courses in the career sectors that open up career options to all students and prepare them for productive lives in a highly technological society. At the middle school level each student should complete a two year curriculum with one year of career explorations and one year of technology foundations. At the high school level, each student must complete one year of technology core, and one year in an introductory level CTE subject. In addition, there must be access on the comprehensive high school campus to allow any student who so elects to take advanced courses in the CTE programs offered at that school, in order to prepare for a career after graduation. Finally, all such courses which meet the California CTE Model Curriculum Standards must count toward graduation and be included in admissions credit calculations for State funded colleges and universities.
- **California needs a clear vision of the nature of the problem we face: K-12 education must serve the needs of all students – all types of learners and whatever their career or educational goals after high school graduation.** Some areas included in CTE do not offer realistic employment opportunities. CTE programs must be put in place to assure that students are prepared for identified careers that offer real opportunities for employment with good wages and benefits after high school.
- **A-G requirements and other academically based measures of student achievement must be completely overhauled to reflect the fact that they do not address the needs of the majority of students.** The underlying assumptions of A-G, as well as the method by which A-G “certification” is awarded must be examined at the level of the state government and not left in the hands of the University of California. The influence of academics on the high school curriculum must be balanced with that of Career Technical Education to assure that both are well represented in the high school program of study. ‘Rigor’ as regards Career Technical Education must be understood to relate to the requirements of career pathways, not to the goals and objectives of academic subjects.
- **CTE must be defined and implemented according to those that know it best: the CTE teachers and CTE teacher educators of the state.** While many have opinions about CTE, those who know it best and run it successfully, the CTE teachers and CTE teacher educators, are those who are best positioned to formulate what it should be and how it should be implemented. The reimplementation of CTE in the schools must not be done by those administrators and ‘experts’ who do not believe in CTE to start with and have not repaired clearly identified problems with existing school programs that have led to poor academic performance and high dropout rates.
- **The supply of teachers must be stimulated immediately and incentives provided to encourage capable high school students and persons in industry to pursue CTE teaching credentials.** The California Teacher Credentialing Commission must establish the need for teachers in these fields and



declare teacher shortages in technical areas where they exist. Existing credentialing programs and departments must be encouraged by pressure at the state level to rebuild and reinstate their programs. Currently, Single Subject credential programs in ITE are in place at four CSU campuses: CSU Los Angeles, Humboldt State University, CSU Fresno, and San José State University. These and other CTE Single Subject credential programs must be provided with the means to recruit and reestablish their programs to meet the growing needs in the schools. The Designated Subjects credential system needs to be strengthened and established as an interim solution to enable larger numbers of teachers to enter the classroom more quickly. The community college system must become a partner in these programs offering technical courses that are no longer offered in the CSU system and recruiting students into CTE teacher credentialing programs.

- **K-12 student achievement measures must be broadened to include CTE outcome measures and ‘Career Maturity’** which is an outcome of middle school and 9th grade CTE programs.
- **School funding for CTE must be increased.** It must take into account that preparation in CTE subjects requires specialized facilities and equipment and is therefore more expensive than subjects that can be taught in the classroom.
- **Career Technical Education in California must be more carefully defined.** It has been expanded in the last four years to include several career paths that do not offer rewarding salaries to high school graduates. This must be carefully examined to assure that we do not offer false hope to students who elect to pursue advanced courses in CTE in the high schools.
- **Systemwide support must be established in higher education for courses and programs in Career Technical Education.** Admissions policies and processes at all state institutions of higher education must accept CTE credits and grade points on the high school transcript when a student applies, whether to the community colleges, the California State University, or the University of California.
- **Teachers in CTE need incentives to work periodically in their appropriate industrial sector -** during summers, as part of their professional development.

Summary

Career Technical Education is a comprehensive set of K-16 instructional curricula that has evolved continuously over the past century. It is constantly adjusting to meet the changing requirements of career pathways and the workplace. It offers technological literacy, an understanding of the value of work and skill with tools and materials, and real hope of jobs that pay well to all students who complete a CTE program. Research shows that existing forms of CTE have positive effects on both graduation rates and the postsecondary academic success of all students. It is a matter of California State Law and basic social and educational justice that our education system must serve the real needs of all students, whatever their career or educational goals, so that they can enter society with the ability to earn a living wage and raise a family. CTE must be a major component of the education of all students, and must be available at the advanced level to any student who wishes to pursue it, whatever their career or educational goals. CTE is completely different in philosophy and delivery from academic subjects, but it builds on those academics as required by the identified career pathways.

Even as we attempt to restore CTE to the schools, we are in real danger of having CTE changed into an ineffective system by educators and consultants who think they ‘know what CTE should be like’ and who want to be sure that it is burdened with academics that are already taught in many other parts of the curriculum. CTE is not broken, but after twenty five years of neglect it needs investment and development. It must be an important part of the solution to the problems in our currently broken school system. With academics and CTE together, California can achieve a world class education system that meets the needs of all students and helps in the maintenance of a strong state and local economy.

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