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Career and Technical Education: A Best Kept Secret in Modern Education

The educational community continuously searches for the most proven and effective methods that enhance learning. One of the most successful and proven methods for academic success for all students is career and technical education. This article provides a description and explanation of why CTE is effective, as well as presents empirical findings to support CTE as a sound educational tool for the modern learner.

Mickey Kosloski

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What makes today's modern learner tick? In our ongoing quest to discover how to best enhance learning, we constantly seek research-based strategies that have been empirically proven to help our learners thrive in today's ever-changing educational environment. There are many approaches that have merit, and each provides a new and exciting direction for the future of education. However, sometimes in our quest for "effective, innovative, and exciting" we run the risk of taking for granted what has been tried, tested, and successful. Career and technical education (CTE) is one such educational arena that may often be overlooked as a valuable enhancer of core academic achievement in our educational communities (for more information including links to important CTE resources, see Appendix A). Based on progressive workforce skill sets and the need for curricula to keep pace, new approaches to CTE include intentionally

infusing academics into the curricula, the continuous evolution of curricula based on business and industry input, and the application of academics in a real-world setting. CTE is an effective method of enhancing learning.

Some of these commonly touted strategies for today's learners include academy or specialized settings; communities of learning that span across brick and mortar classrooms, utilizing today's Web 2.0 communication tools; online learning environments; and the granddaddy of them all, STEM education, or the integration of science, technology, engineering, and mathematics principles. However, CTE provides an excellent strategic option in combining contextual and applied learning with evolving curricula that meets the needs of today's employers.

What is Career and Technical Education?

Career and technical education is a program of study that offers a sequence of courses that provides individuals with the academic and technical knowledge and skills they need to prepare for further education and careers. What you may not realize is that virtually every student across the country (approximately 98%) takes at least one CTE course during their high school career, and approximately one in four takes three or more courses in a concentrated program area (U. S. Department of Education, 2008). That includes all learners whether they are college-bound or not. If approximately 98% of our students are engaging in CTE curricula regardless of their career path, then CTE necessarily plays a role in the development of today's modern learner.

There are seven nationally recognized CTE program areas: business education, marketing education, technology education, family and consumer sciences, health occupations, agricultural education, and trade and industrial education (Brustein, 2006). Each program area is defined by the Carl D. Perkins Career and Technical Education of 2006, often referred to as the Perkins Act, the primary legislation defining and dictating CTE (U.S. Department of Education, 2007). The

content of these programs naturally lends itself to applied, contextual learning. In fact, stakeholders have considered CTE "applied academics" for decades.

One reason CTE has been a hidden treasure for so long is that this legislation has mandated accountability measures since the 1998 reauthorization, with the most recent, or 2006 reauthorization creating more stringent verbiage regarding academic outcomes.

For years stakeholders have exclaimed the academic value of CTE, but there was little empirical evidence to verify such outcomes. As a result of the 1998 authorization, many studies regarding the academic value of CTE have been published and circulated. For example, one of the most widely publicized studies through the National Research Center for Career and Technical Education (NRCCTE) was a "Math in CTE" study whereby several local CTE curricula intentionally infused more mathematics into CTE programs. The result? The study showed that students involved in the program scored significantly higher in standardized math exams with no loss of CTE knowledge or skills (Stone, Alfeld, & Pearson, 2008). Based on this study, several like studies have been implemented with a focus on science and literacy in CTE. However, such research is often overlooked in lieu of more innovative programs. If you want anecdotal proof that it works, ask any CTE teacher if their son(s) or daughter(s) has taken one or more CTE courses. Odds are that you will get a 100% "yes" response rate because they "strongly encourage" them to do so. CTE teachers witness first-hand results of the impact of their programs. They may or may not be able to cite research attesting to its benefits, but there are few testimonials any stronger than encouraging one's own son or daughter to take part in a CTE program. (As a note, I have two college graduate daughters, and both work in professional fields today. Both were "encouraged" to participate in CTE for their final three years of high school, and they also attribute their success, in part, to their participation in CTE.)

Curricular Elements of Career and Technical Education

Career and technical education utilizes a three-pronged strategy: classroom instruction, cooperative learning, and co-curricular student organizations. CTE courses utilize classroom instruction, as do other types of coursework while including additional elements to the curricula not included in most other types of educational programs. Many CTE courses include cooperative education, or an element whereby learners utilize the workplace as an extension of their coursework. In this scenario, students attend work after school, but it is much more than simply a work-study program. Students, teachers, employers, and parents all develop a learning plan individualized for each learner based on their career aspirations, course curricula, and learning opportunities. The field experience has identified learning outcomes and is coordinated by the teacher.

All students take part in the career and technical student organization (CTSO). CTSOs are not just a "club;" rather, they are co-curricular student organizations that not only reinforce the curricula, but also provide learning opportunities for students that cannot be replicated in a classroom setting. While each member is not required to participate in state or national activities, students are required to take part at the local level as a part of their CTE curriculum. In addition to course competencies, learners develop skills and knowledge in leadership, teamwork, self-esteem, decision-making, community awareness and service, and personal and social development. These are essential traits for today's modern learner, as today's employers demand workplace readiness skills more

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than ever. Because the occupational skills required in the workforce now evolve with lightning quickness, employers prefer and need learners who have acquired such transferable traits. Specific occupational skills change, but the ability to change with them lies in such soft skills. Many students also become quite self-motivated by leadership, service, and competition opportunities, and often take control over their own learning. Unlike other academic clubs, CTSOs are part of the curriculum. A recent study produced by Harvard Graduate School of Education analyzed our current educational system as a whole and discussed strategies for improving academic results (Symonds, Schwartz, & Ferguson, 2011). The outcome of the study was that, regardless of how much academic rigor we infuse into our curricula, results will not change without a change in our approach to instructional strategy. They proposed a model for educational improvement that included more contextual elements providing a more effective learning environment than our traditional learning environments. As a part of the model, the authors suggested that the integration of the working world was an essential contextual element, something that is received in both cooperative education and CTSOs. While the authors looked to European educational models to draw analogies, the proposed Harvard Graduate School of Education model is a mirror image of many, if not most, CTE programs.

John: A Case Study in the Value of CTE for Modern Learners

John is a typical high school CTE student. He spent two years taking marketing education in high school because he aspired to enter a career in pharmaceutical sales. During his high school career John learned the fundamentals of marketing, and more specifically professional selling and management. In addition to his course work, John was involved in cooperative education where he worked as a sales clerk in a small retail store. Working together with his teacher and employer to develop a learning plan designed to develop selling skills and knowledge, John learned a great deal about the sales profession from professionals and

educators with real-world success, and did so in a safe environment whereby mistakes and development were not only accepted, but also expected to some degree. When products or strategies changed, John was included in the employer's training and development process. By the time he graduated from high school, John had become a talented salesperson and also had experience in leading new employees. John had developed a high level of confidence in his abilities and an even greater affinity for his future career choice.

John was also very active in DECA, the marketing education CTSO. He played a key role in the school's large community service project, heading a subcommittee through completion. The community service team collected more than 2000 pairs of used eyeglasses to donate to the local Lion's Club. John also competed in the professional selling competitive event each of his two years. This individual event required John to start preparing his presentation in October of each year. In doing so, John collaborated with professional salespeople in the community to develop his strategy. During his second year John had advanced enough via his experiences to place second in state competition and qualified to travel to national competition.

During those two years of high school John developed essential traits possibly not developed by many, or even most, "traditional" students. John experienced first-hand skills and knowledge in leadership, teamwork, self-esteem, decision-making, community awareness and service, and personal and social development, and he did so in academic, social, and workplace environments. John opted to attend college and pursue a bachelor's degree in marketing. As a result of his CTE experience, he was well-prepared for his collegiate career and also had significant workplace readiness experience prior to entering the labor market. Even if John does not land his "dream job" directly out of college, he will be equipped to apply his CTE experiences in any career field.

As a result of the curricular elements of CTE, students like John embody what it is to be a modern learner—capable of an evolving skill set demanded by employers and armed with real-world experience prior to entering college or the workforce.

The Benefits of Career and Technical Education

While it was originally conceived as a practical arts program in the early 1900's, today's CTE has gradually evolved into a series of programs open and beneficial to students at every level, from the at-risk learner to the International Baccalaureate (IB) student. For example, Robinson Secondary (Fairfax, VA)—an IB school—has one of the largest CTE programs in the state. The CTE programs are teeming with IB students, as well as non-college bound students. One widespread obstacle facing CTE is its perception as purely vocational education, or a program of study only for those learners not opting to attend postsecondary education. Often those misperceptions are not only placed in the minds of the students themselves, but also with parents or advisors who are not aware of the benefits of CTE.

Career and technical education does offer significant benefits to the "forgotten half," as coined by Symonds et al. (2011), or those learners who do not plan to attend college immediately following high school. Because one of the goals of CTE is to provide learners with practical, hands-on, career-based learning opportunities, students who have no designs on attending postsecondary education should be involved with a CTE program. This not only provides them with an opportunity for contextual learning, but also provides them with career exploration and preparation. At the same time, those learners who plan to attend a 4-year university benefit from the integration of academics, contextual learning, and developmental benefits as described earlier. If contextual learning and the application of academics truly does enhance

learning—and there is overwhelming evidence to show that it does—then CTE provides something for all of today's modern learners, regardless of their intended educational or career path.

Empirical Studies of the Benefits of CTE

As it relates to how CTE enhances academic success for students, consider the following highlights of findings and conclusions from a select few empirical studies. Dozens or even hundreds of additional studies show similar results.

For lower achieving students

A significant proportion of students who need the most academic support are enrolled in CTE courses (Kazis et al., 2005).

- Taking just one non-mandatory CTE course significantly reduces the risk of dropping out of high school (Walker, Hare, & Mulvihill, 2009). Results are amplified for at-risk students (Kazis et al., 2005).
- For low-achieving students who participate in CTE programs, the achievement gap is greatly reduced or insignificant by the time they graduate from high school (Gray, 2004).
- CTE engages students in career-oriented learning experiences that equip them to make well-informed decisions about further education, training, and employment (Meeder, 2006).

For students at all academic levels

- CTE positively affects students' academic engagement, and the stronger a students' involvement, the better the results (Lekes et al., 2007)
- Four types of non-academic experiences are derived from CTSOs:

leadership, professional development, competition, and community service (Alfeld et al., 2007).

- In a longitudinal study examining the effects of CTE on academics, the National Center for Career and Technical Education Research determined that in a teacher-led intentional infusion of math in 6 different CTE areas, students were able to put problems into a relevant context and know exactly how to solve them (Stone, Alfeld, & Pearson, 2008)
- Students learning to see the applied academics aspect of CTE and CTSOs apply greater effort to their academic studies (Plank, DeLuca, & Estacion, 2005)
- When learning reading in the context of a CTE discipline, students scored higher on reading comprehension and vocabulary scores than those of their non-CTE counterparts (Park, 2010).
- Students who participated in DECA showed academic improvements throughout high school. There was also a direct relationship between how engaged they were in the CTSO, as well as how long they had been members (Kosloski, 2010).

While this list could consume page after page, ultimately we look for proven results to validate what works and what does not. We have them, and we have plenty of them.

Conclusion

While CTE may or may not be the universal enhancement for education in the case of every learner, one thing is certain: it works. While there are many sensible and effective approaches to educational reform, CTE provides an academic venue that motivates learners, improves academic outcomes, and enhances other facets of learners' lives such as self-esteem and motivation. Through

contextual learning and a variety of instructional strategies not replicated in other academic programs, CTE has a positive impact on our students' academic outcomes. Because programs are developed and regularly modified based on input from business and industry leadership, CTE helps prepare our learners in an ever-changing world. Because of the curricular involvement with business and industry, CTE is necessarily and continuously evolving for the modern learner. It also utilizes a tried and tested program and more than ever is intentionally infusing modern technology and current pedagogical strategies based on business and industry input. CTE is no longer "your father's vocational education." Rather, it is a program of study utilizing instructional strategies that can benefit each and every learner in the modern world of education.

Appendix A: Additional Resources

The CTE Resource Center (CTERC) is funded by the Virginia Department of Education with federal funds provided through the Carl. D. Perkins Career and Technical Education Act (2006). CTERC provides support to CTE programs throughout the State of Virginia by providing curricular materials, fostering collaboration between educators and business and industry professionals, enhancing school improvement efforts, and much more. To read about CTE students' success stories, visit CTERC online at **www.cteresource.org/slideshow/index.html**

The Career Clusters Web site, sponsored by the National Association of State Directors of Career and Technical Education Consortium, provides information on how CTE programs are evolving to better meet the needs of today's workforce. In an effort to combine core academics with CTE curricula in a real-world setting, Career Clusters help students to define both core academic and CTE courses that define a program of study and help students

attain success in 16 Career Clusters and 81 different Career Pathways. **www.careertech.org**

The Association for Career and Technical Education (ACTE) provides information, advocacy, and public awareness of CTE, and is suited for teachers, administrators, business and industry professionals, or other CTE stakeholders at the secondary, postsecondary, and adult learning levels. ACTE is considered a "one-stop shopping" source for CTE legislative information, and also hosts one of CTE's most highly regarded academic journals. **www.acteonline.org**

Key Student Organization Web Sites:

Business Professional of America: **www.bpa.org**

Future Business Leaders of America: **www.fbla-pbl.org**

DECA (Marketing Education): **www.deca.org**

FCCLA (Family and Consumer Sciences): **www.fcclainc.org**

HOSA (Health Professionals): **www.hosa.org**

National FFA (Agricultural Education): **www.ffa.org**

SkillsUSA (Trade, Technical, and Service Occupations) **www.skillsusa.org**

TSA (Technology Education): **www.tsaweb.org**

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