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Recommendations for Developing College and Career Ready Students

A position paper

of the

New York State Association for Career and Technical Education

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Chartered by the New York State Board of Regents

**RECOMMENDATIONS
FOR DEVELOPING
COLLEGE AND CAREER READY
STUDENTS**

Introduction

Early in August 2011, representatives of NYSACTE’s affiliate organizations came together to develop a set of beliefs about career and technical education and the preparation of students for success in life and the world economy. Those beliefs, as follows, served to inform the recommendations we present here.

1. CTE provides practical application of core academic, technical, and employability skills that contribute to a rigorous and relevant education and increase student engagement.
2. CTE deepens students’ ability to understand, apply and master academic skills through real-world extensions into problem solving.
3. CTE is a natural and effective vehicle for students to explore interests, discover talents and develop technical skills to prepare them for ultimate career success and transition to further education.

Direct partnerships with employers and local business leaders provide feedback and support essential to CTE. These insights are valuable to school improvement efforts and in the preparation of students who are college and career ready in locally related ways. The opportunity to make our recommendations is provided as the Board of Regents revisits the high school graduation requirements. We believe that the graduation requirements should be informed by a clear definition of *college* and *career ready*. The definition must recognize the power of convergence in academic and career-based instruction as a tool for school improvement, for preparing students for their adult roles, and for meeting the employment needs of business in our communities and the nation. Above all, we must educate our students so they can not only earn at least a middle class wage with benefits, but so that all students have the opportunity for developing their fullest potential.

“Given these dismal attainment numbers, a narrowly defined “college for all” goal—one that does not include a much stronger focus on career-oriented programs that lead to occupational credentials—seems doomed to fail.”

College Board, 2010

Recommendations

1. **The Board of Regents must adopt a unified definition of *College and Career Ready*** and implement changes in the system to make it a reality. The following components are critical to defining College and Career Ready and reflect the integration of instruction in academics and career education.

Student mastery of three skill sets should be addressed in the definition:

- a) **Academic skills** are essential to perform in the workplace and be a life-long learner in a career field. The levels of requisite academic skills are varied and depend on the type of career. Students need to acquire career-related academic skills *consistent with the Common Core State Standards* in context and in authentic situations.
- b) **Employability skills** make a difference in getting a job and keeping a job to build a career. These skills are also critical for success as an adult outside of work. Skills and dispositions that are common across all workplaces include: responsibility, self-management, integrity/honesty, reliability, positive attitude and willingness to work hard, as well as the abilities to solve both defined and open-ended problems, to work in groups, and communicate effectively in all formats.
- c) **Technical skills** are industry-based, may be required for licensure, and represent what a student needs to know and be able to do in the specified career area (career-specific skills). Technical skills are

constantly changing because of improvements in technology, so instruction must be updated continually.¹

NYSACTE stands ready to be an active participant in formulating a definition of College and Career Ready for use in establishing 21st Century graduation requirements for our students.

Rationale: This action would provide the philosophical base for decisions made surrounding graduation requirements, provide clarity to the aspirational levels established as College and Career Ready, and signal the value of integrated academic and career-based instruction to enhance student engagement and raise student achievement.

2. Affirm the Common Core State Standards, Career Development and Occupational Studies and Next Generation Assessments to converge career and academic content and instructional practices by expanding:

- a) **Programs of Study:** Integrated academics, consistent with the Common Core State Standards and career instruction, offered through a variety of comprehensive programs of study, such as approved programs, give students the opportunity to learn, retain, and apply core academic content more efficiently and effectively. Continuation of and strengthening the program approval process in LEAs and BOCES will be an important element in this effort.
- b) **Availability of Embedded/Integrated Credit:** Allowing students to meet academic requirements through CTE courses and CTE focused programs of study engages them in career exploration and encourages them to apply core academic learning in meaningful ways. Expand the availability of integrated credit through CTE Approved Programs affords more students the opportunities of engagement in education and career success.
- c) **Alternative Assessment:** Creating alternative pathways to graduation is an important means to increase student engagement. We support the successful completion of a CTE technical assessment (as part of an approved CTE program) to substitute for one of the five required Regents exams and their use in meeting aspirational levels of college readiness. These assessments must be of equal quality to current Regents examinations and will require a sound vetting.

“College for all” might be the mantra, but the hard reality is that fewer than one in three young people achieve the dream.”

The College Board

Rationale: These actions would more fully open up the six career clusters as valued pathways to graduation for all students and enhance the ability for students to demonstrate college and career readiness. In addition, approved programs must be re-certified every five years, which ensures a cutting-edge, dynamic curriculum reflective of industry standards to provide students with the most current knowledge and skills required for career readiness.

3. **Avoid imposing additional math and science course requirements.** Simply adding credits increases seat time but may not increase rigor or relevance. Little or no current research demonstrates the effectiveness of additional dosages of math and science in increasing mathematics or science achievement. Through relevant learning and application of the tools of mathematics- and science-based problems does encourage students and does help them learn.

“...a tougher approach to academics might leave students no better prepared for college and work, while increasing the number of dropouts. The National Research Council concluded that high school exit exams have decreased high school graduation rate in the US by 2 percentage points without increasing achievement.”

R. W. Rumberger

¹ ACTE, 2010 (with additions) & Stone, 2011

Rationale: Additional academic press through higher level courses has limits and may decrease school completion rates without substantively changing achievement. Increased participation in CTE and engagement with the higher order skills present in career-based instruction and context offer the best opportunity for students to become engaged, achieve and avoid remediation in postsecondary education.

4. **Link learner levels by restructuring existing middle-level and early high school CTE.** Create programs of study that begin in middle school and continue into high school to solidify the curricular connections between grade levels and build capacity at grades 9/10 for exploration of career pathways. This would strengthen the continuum from grades 6 through 10 to prepare students for career pathways, which often begin in grade 11. Currently, students are rarely able to begin career instruction in grades 9 and 10 and do not seriously consider a career pathway until grade 11.

Rationale: Research in career development indicates that students begin to explore careers much earlier than eleventh grade. A grade 6 “Introduction to CTE” course encompassing the six career cluster areas (agriculture, business and marketing, family and consumer sciences, health occupations, technology, and trade and technical) will promote vertical alignment with high school programs of study. Providing an opportunity for middle level CTE electives and acceleration will allow students to enter high school with diploma credit. Implementing models of integrated CTE courses for grades 9 -12 will serve as a signal to the career pathway a student is pursuing and not simply a mixture of courses to meet the graduation requirements. The introduction of business and industry and their role in the classroom could take place here. Providing districts with flexibility to explore and pilot models would help to achieve this goal and develop successful practices for replication.

5. **Set goals for increasing the number of students who have Technical Endorsements to their diplomas.** Include the number of students who pass technical assessments and receive Technical Endorsements to their diplomas as part of each school report card. Use the technical assessment as an additional way for schools to reach the aspirational goals we have for students. Recognize and rank schools that have a high percentage of students that receive CTE endorsements.

Rationale: The Technical Endorsement must be recognized in a manner consistent with the status it deserves. A Regents Diploma and a Regents Diploma with Advance Designation *and* a Technical Endorsement are the gold standard diplomas. Incentivizing schools to increase the number of Approved Programs and the number of endorsed diplomas would give additional credence to the College and Career Ready standard the state has established.

“In fact, 27% of people with post-secondary licenses or certificates—credentials short of an associate’s degree—earn more than the average bachelor’s degree recipient.”

The College Board

6. **Enact policies that assist *all* students to develop knowledge of career pathways leading to specific occupations and to have a personal career plan with flexible career goals.**

Rationale: Exposure to career pathways based on student interests and based on the realities of the labor market and work-based opportunities are the key elements to meet this objective. Goal setting and planning are important elements in student engagement and development of a connection with the adult world.



APPENDIX

The Efficacy of CTE: Research and Professional Opinion

College and Career Ready

NYSACTE is pleased that college *and* career readiness have been considered in the development of the Common Core State Standards. However, a clarifying definition of “career ready” remains elusive. We agree with ACTE that the “college and career ready mantra” is used:

...without considering what constitutes the readiness to follow a career path that will result in work that provides a middle class life style with benefits. These Career Readiness skills involve three major skill areas: *core academic skills* and the ability to apply those skills to concrete situations in order to function in the workplace and in routine daily activities; *employability skills* (such as critical thinking and responsibility) that are essential in any career area; and *technical, job-specific skills* related to a specific career pathway.²

Career readiness is not synonymous with college readiness, but they are complementary, as there is a clear interface between career and college readiness. Ideally the high school curriculum would incorporate the best aspects of academic rigor and cutting-edge career preparation. “...pathways that include both academically rigorous, college-preparatory requirements and challenging professional and technical knowledge grounded in industry standards.”³

Currently, college and career readiness stand apart. Because of this, it is our contention that schools are not doing a comprehensive job in career readiness. Schools must focus on college and well defined career readiness to drive student achievement. This is borne out in comments by James Stone, Director of the National Research Center for Career and Technical Education.

There are “three major components of high school reform that CTE is particularly well-suited to provide: **student engagement** (reducing dropout and increasing school completion), **strengthening achievement** (technical and academic), and **transition** (both from high school to postsecondary and from education to employment). Engagement, achievement, and transition provide a framework for translating understanding and measuring the impact of rigor, relevance, and relationships.

It is essential that students graduate from high school with a set of skills that they can use to **continue learning; to get a job, and to live a better life**. Preparation for productivity is equally as important as preparation of citizenry. To do this, school has to be more relevant to what life is like after school.⁴

There are compelling business, industry and employment arguments for College and Career Ready pathways and changes in instructional practices. The recent Harvard School of Education Study, *Pathways to Prosperity: The Challenge of Preparing Young Americans for the 21st Century*, outlined the changes that have occurred in the workforce and the difficulty faced by students unprepared for entry into the current job market.

² Association for Career and Technical Education

³ de Vise, 12/12/11

⁴ Stone, 2011

By 2007, (since 1973) this picture had changed beyond recognition. While the workforce had exploded nearly 70 percent to 154 million workers, those with a high school education or less had shrunk to just 41 percent of the workforce. Put another way, while the total number of jobs in America had grown by 63 million, the number of jobs held by people with no post-secondary education had actually fallen by some 2 million jobs. Thus, over the past third of a century, all of the net job growth in America has been generated by positions that require at least some post-secondary education. (p. 2)⁵

The Georgetown Center projects that 14 million job openings—nearly half of those that will be filled by workers with post-secondary education—will go to people with an associate’s degree or occupational certificate. Many of these will be in “middle-skill” occupations such as electrician, and construction manager, dental hygienist, paralegal and police officer. While these jobs may not be as prestigious as those filled by B.A. holders, they pay a significant premium over many jobs open to those with just a high school degree. More surprisingly, they pay more than many of the jobs held by those with a bachelor’s degree. In fact, **27 % of people with post-secondary licenses or certificates—credentials short of an associate’s degree—earn more than the average bachelor’s degree recipient.** (p. 2-3)⁶

and

There will also be a huge number of job openings in so called blue-collar fields like construction, manufacturing, and natural resources, though many will simply replace retiring baby boomers. These fields will provide nearly 8 million job openings, 2.7 million of which will require post-secondary credential. In commercial construction, manufacturing, mining and installation, and repair, this kind of post-secondary education—as opposed to a B.A.—is often the ticket to a well-paying and rewarding career. (p. 3)⁷

Rigor and Relevance Through CTE

The day-to-day experience of most students in high school includes many elements of boredom. The lack of connection between what is taught and its application to the real world often leave students without a sense of purpose. A recent *Boston Globe* article posited that “a tougher approach to academics might leave students no better prepared for college and work, while increasing the number of dropouts. The National Research Council concluded that high school exit exams have decreased high school graduation rates in the United States by 2 percentage points without increasing achievement.”⁸

Once again the *Pathways to Prosperity* study informs these conclusions:

But after 20 years of effort, and billions of dollars of expenditures, the time has come for an honest assessment. The underlying assumption has been that an academic, classroom-based approach is capable of preparing nearly all adolescents and young adults for success in the 21st century. While there have been marginal gains, the bottom line measure of success is college completion. And on that score, we have still been unable to get more than 30 percent of young adults to earn a bachelor’s degree by their mid-20s. **“College for all” might be the mantra, but the hard reality is that fewer than one in three young people achieve the dream.**

Given these dismal attainment numbers, a narrowly defined “college for all” goal—one that does not include a much stronger focus on career-oriented programs that lead to occupational credentials—seems doomed to fail. The College Board has set a goal of raising our college completion rate to 55% by 2025. This would require an annual increase of

⁵ Education Pays 2010

⁶ The Georgetown Center

⁷ Center on Education and the Workforce

⁸ Rumberger, Russell W.

1% for the next 15 years, a much faster rate of progress than our experience over the last 15 years would suggest is possible.⁹

If true, a tougher approach on academics and more academic course requirements have limits in increasing achievement. When students speak of boredom they refer to the lack of engagement in class and the lack of connection between what is presented and how it applies to their life or future.

How can we keep those students in school—and better serve them when they stay?

Research has shown that the key factor in student success is engagement. Students who are not engaged are less likely to perform well in school, more likely to fail classes, and less likely to graduate. In the 2006 Civic Enterprises report, *The Silent Epidemic*, high school dropouts reported that the most frequent reason for leaving school was that classes were not interesting.¹⁰

Relevance makes rigor possible for most students.

For their part, students wish that their high-school and college courses were more closely tied to the world of work. The 2009 High School Survey of Student Engagement revealed that 40% of high-school students were bored in school because the curriculum was not relevant to the real world. Just 26% thought that high school provided skills necessary for work after graduation.¹¹

The International Center on Leadership in Education provides a framework for measuring rigor and relevance. Based on Bloom’s Taxonomy and the Application Model, the Rigor/Relevance Framework define a rigorous program as one where students think at high levels while working on real-world problems. This and other models for student engagement are embraced and practiced in CTE.

Convergence of Academics and CTE

The great promise of an integrated CTE curriculum pathway is establishing an interdisciplinary alignment with core academics, which can make learning those academics real and exciting for students. Students can answer: “Why do I need to know this?” This is true for all students as they pursue their career path.¹²

New York State has experience with integrated academics through its CTE Approved Program process established by the Board of Regents in 2001. School districts and BOCES can offer up to four academic credit distributions in Approved CTE Programs. Approved programs provide students with:

- A framework for problem- and project-based learning aligned with the Common Core State Standards and applied in a real-world context,
- A challenging academic component within CTE, and
- A rigorous and relevant learning pathway.

Student outcomes improve when CTE programs use a robust integrated curriculum aligning core academics and Career and Technical Education. The National Education Longitudinal Study and ConnectEd: California Center for College and Career have monitored CTE student achievement data and other factors for over a decade. Researchers identified that when CTE programs utilize an integrated curriculum, there is a positive correlation with:

- Improved learning: students learned faster and retain concepts better when taught rigorous and relevant academic material in a context of real world application.

⁹ The College Completion Agenda

¹⁰ Rumberger, Russell W.

¹¹ Kelly, A. P.

¹² Hagen *et al.* p. 17

- Higher academic achievement: CTE students were found to have increased graduation rates and improved exit exam passing rates than students from the general population.
- Higher wage earning potential: postsecondary students who participated in high school CTE career pathways that combined integrated curriculum with work-based learning achieved higher wages compared to similar students who did not participate in CTE pathway programs.
- Lower dropout rates: risk of dropping out was four times higher when students took no CTE courses than when students completed three such courses for every four academic courses.¹³

The research base is significant. Several model projects and programs have found parallel results including: [Math-in-CTE](#): The National Research Center for Career and Technical Education; [Link Learning](#): a March 2007 study conducted collaboratively by ConnectEd: The California Center for College and Career and the Career Academy Support Network at the University of California at Berkeley; and [High Schools That Work](#) (SREB).

Convergence between academics and CTE needs to become a reality if we are to create new pathways for students to achieve success as they progress through their educational and career paths. Learning how to master new materials that are often of a technical nature and require critical thinking and problem solving skills are required skills for all young adults today. In our rapidly changing society constantly having to learn how to use new information for a large part of an individual's work life is rapidly changing the expectations in what we call a traditional public education.

Students taught with integrated curriculum reported that they specifically liked working in teams and indicated improvements in both attitude and work habits. Students also demonstrated better self-direction, higher attendance, and improved levels of homework completion. Students at schools with highly integrated rigorous academic and CTE programs have significantly higher student achievement in reading, mathematics, science, and social studies than students at schools with less integrated programs.¹⁴

The CTE Technical Assistance Center of NY has identified several examples of high quality CTE programs with integrated academics. These include the Certified Nurse Assisting Program at Oswego BOCES (ELA), the Aviation Program at Ulster BOCES (ELA, science and math) and the Hospitality and Culinary Arts Program at Emerson High School in Buffalo (ELA). The CTE Technical Assistance Center of NY is actively engaged in identifying other high quality Approved Programs with significant models of integrated academics.

Fortunately New York has a working definition that new programs and models of integrated academics can be built upon.

An integrated course is one that delivers academic content within a CTE context. Students will be able to fulfill core academic graduation and CTE program sequence requirements through integrated and/or applied courses which include academic content. These courses would be jointly planned and/or delivered by academic and/or career and technical education teachers. Programs which use this approach will have to create a curriculum map to document how the content of the integrated courses meets the Regents academic core requirements.¹⁵

Transitions and Workplace Skills

The first years out of high school are among the most critical in defining a young person's success in postsecondary education and employment. According to a 2009 New York State Education Department report, 23% of students who entered community college completed in 3 years (2004 cohort) and 34% completed in ten years (1997 cohort); 48% of the 2006 cohort required some form of remediation. This makes for a pretty daunting picture for a recent high school graduate who seeks to enter a program at a community college. Most assuredly many will not make the second semester and the number in the 2004 cohort who entered the second year was 61%. Obviously, we have to

¹³ www.connectedcalifornia.org/linked_learning/evidence

¹⁴ Bottoms, G. 2008

¹⁵ NYS Implementation Guide for Approved Career and Technical Education Program

make this transition from high school to community college more effective. Career pathways offer a compelling way to address this issue.

Connecting high school to adult life and a student's interests requires the provision of multiple pathways to school completion. The key elements in this transition from high school to college and then work are a variety of pathways to graduation from high school, a career plan and work-based learning opportunities and support services. ***Multiple pathways are not a set of tracks with different outcomes; they are alternative means to achieve the same outcomes (i.e., academic standards, college success, workplace skills and a successful adult life).***

Pathways to Graduation: Not all students have the same interests or respond to the same motivators. Providing an increased array of paths to graduation provides students with a sense of personal agency and autonomy, permits a clearer link with their school work and interests and can result in increased levels of engagement.

Career Planning: Goal setting is a powerful force. Once goals are set, they serve as a guide and touchstone for moving forward. Students who have goals are more likely to work toward their achievement. Creating a career plan helps to focus a student's interests, make connections with college and adult life and set benchmarks for goal achievement. There is an important role for middle grade career planning. It provides support for low income students in increasing engagement levels. Students with greater exposure to career relevant planning were significantly more likely to be engaged in their education and that school engagement predicted higher grades.¹⁶

Work-Based Learning: As work in all career fields becomes more sophisticated and students have fewer opportunities for work-based learning, then their academic learning becomes less relevant. Students deserve the opportunity of engaging with professionals in the workplace as they use the tools of math, science, and language to solve problems and create opportunities. These opportunities powerfully ignite ideas and clarify goals and interests. Shadowing, visitations, internships, employment and other models provide these opportunities for students, which are important both for students interested in trade or technical careers and for those seeking the professions.

Support Services: Relationships are extremely important in developing career interests. Having someone who knows them and their interests is a powerful force in the life of a student. Wrapping services around student interests and needs is a key to their success. Career pathways involve guidance counselors, work opportunities coordinators, academic advisors and supports and teachers, all of whom come to know their students well.

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¹⁶ Orthner, Dennis et al.

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