

re:VISION

CAREER AND TECHNICAL EDUCATION: PREPARING STUDENTS FOR THE FUTURE

by Casey Wyant Remer, Policy Analyst



Across all sectors, more education and skills are demanded of workers and applicants than in previous generations. By 2018, 63 percent of all job openings will call for at least some training beyond high school.¹

Not all jobs will require a four-year or advanced degree, but educational requirements are increasing across the board. In many fields, graduates can succeed and earn a living wage with an occupational certificate or two-year degree. According to predictions by the Georgetown Center on Education and the Workforce, **nearly half of the projected job openings that need postsecondary education will go to workers with an associate's degree or occupational certificate.²**

Career and Technical Education (CTE) gives governors and state leaders a valuable tool to prepare students for these increasing workforce demands. CTE has come a long way from the "vocational education" of the past. Once considered an option for students with less academic aspirations, today's CTE classrooms utilize the latest

technologies and often provide students with a direct pathway into their chosen fields. **In 2007-08, 90 percent of students who completed a CTE concentration earned their high school diplomas, well above the overall high school graduation rate of 75 percent.³** Nearly 80 percent of these students enrolled in some form of postsecondary education within two years of graduating from high school.

Efforts abound at the federal, national, and state levels to ensure CTE prepares students for the workforce that business and industry demand. This issue of *re:VISION* highlights the work being done by a sample of national organizations and states to improve CTE, offering policy and education leaders ideas to explore within their own states.⁴

| *Continues on page 3* |

CURRENT EFFORTS HIGHLIGHTED IN THIS ISSUE

FEDERAL EFFORTS (PAGE 3)

The Carl D. Perkins Career and Technical Education Improvement Act of 2006

First passed in 1984 and now up for reauthorization, the *Perkins Act* provides federal support for CTE at both the secondary and postsecondary levels.

CROSS-STATE AND REGIONAL COLLABORATIVE EFFORTS (PAGES 4-5)

The Common Career Technical Core (CCTC)

Developed in 2012 by a collaborative of 42 states and the District of Columbia, the CCTC established a set of common standards for 16 career clusters.

The Career Readiness Partner Council

A coalition of 27 national organizations representing K-12, higher education, philanthropy, policy, and business focused on establishing a common understanding of career readiness.

Achieve, the National Association of State Directors of CTE Consortium (NASDCTEc), and the Association for Career and Technical Education (ACTE)

These organizations have recently partnered on several CTE efforts, including a survey of how states are integrating the Common Core State Standards (CCSS) into CTE instruction and a three-state pilot project to develop instructional tasks aligned to the math CCSS.

The Partnership for Assessment of Readiness for College and Careers (PARCC) & the Smarter Balanced Assessment Consortium (SBAC)

A total of 44 states are participating in these two efforts to develop assessments aligned to the CCSS. Both consortia are developing definitions of college readiness and career readiness.

Preparation for Tomorrow

The Southern Regional Education Board (SREB) is working with 12 states to develop a series of courses that integrate technical and academic knowledge and skills.

The National Board of Professional Teaching Standards

The National Board is currently updating its professional standards for CTE teachers.

INDIVIDUAL STATE EFFORTS (PAGES 6-7)

States are one of the main drivers of change in CTE. This issue highlights a selection of state examples in the following areas:

- *Integrating CTE and Academics*
- *Ensuring Accountability for Career Readiness*
- *Valuing Multiple Forms of Readiness*
- *Collaborating with Business and Community*

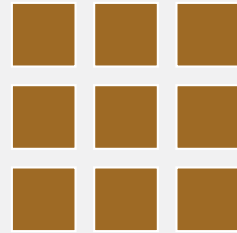
A recent analysis of labor-market projections by Career Clusters shows that as a student's education level increases, more career doors open and the likelihood of earning a living wage increases.



*Jobs for workers with a **high school diploma or less** are concentrated in four clusters.*



*Jobs for workers with an **associate's degree or occupational certificate** are concentrated in six clusters.*



*Jobs for workers with a **bachelor's degree** are concentrated in nine clusters.*

FEDERAL EFFORTS

The federal government has a long history of providing funding for career and technical education, beginning with the *Smith-Hughes Act* of 1917. First passed in 1984, the **Carl D. Perkins Career and Technical Education Improvement Act** provides federal funding for CTE. The 2006 reauthorization, known as *Perkins IV*, replaced the use of “vocational education” with “career and technical education” throughout the law. *Perkins* funds are used to support CTE at both secondary and postsecondary levels. **Perkins IV focused on improving the academic and technical achievement of CTE students**, strengthening the connections between secondary and postsecondary education and improving accountability.

Perkins IV is due for reauthorization again this year, and the U.S. Department of Education recently identified core principles for reauthorization, including **better alignment** between CTE and the labor market; **collaboration** among secondary and postsecondary institutions, employers, and industry partners; **enhanced accountability** for improving academic outcomes and building technical and employability skills in CTE programs; and **systemic reform of state policies** to support the implementation and innovation of effective CTE at the local level. The Department's guidance mirrors much of the national and state-level activity.

CROSS-STATE AND REGIONAL COLLABORATIVE EFFORTS



ational organizations and consortia of states are currently leading many efforts to strengthen CTE quality to ensure that all students are being adequately prepared to enter college or career pathways upon high school graduation. A number of these efforts are described below.

The Common Career Technical Core (CCTC)

Since 2002, 16 Career Clusters have provided a unifying framework for CTE programs across the nation, yet CTE content standards have still varied greatly in quality and specificity from state-to-state.⁵ Inspired by the development and adoption of the Common Core State Standards (CCSS), **42 states and the District of Columbia worked together to develop shared standards for CTE, called the *Common Career Technical Core (CCTC)*.**⁶ The development process, which included business and industry representatives and educators, established a set of standards for each of the 16 Career Clusters and a set of overarching “Career Ready Practices” for all areas. Because CTE programs are found in both secondary and postsecondary settings, the CCTC are not written for a specific grade level. Rather, they provide a set of goals to achieve by program completion in high school or postsecondary education. **The final CCTC standards were released in June 2012 and are now available for state adoption.**

The Career Readiness Partner Council

Existing definitions of “college and career readiness” emphasize the ability of students to enter postsecondary education without need for remediation. **This definition is insufficient for career readiness, which requires more than academic knowledge and skills.** Recognizing this, **27 national organizations representing K-12, higher education, philanthropy, policy, and business formed the *Career Readiness Partner Council* in 2012** to establish a common understanding of career readiness. The *Council* concluded that **in addition to being proficient in rigorous, internationally benchmarked academic courses, a career-ready person must 1.) display proficiency in technical skills appropriate for his or her chosen career pathway and 2.) grasp workplace skills, including communication, critical thinking, problem solving, teamwork, and the use of technology.**⁷

Achieve, the National Association of State Directors of CTE Consortium (NASDCTEc), and the Association for Career and Technical Education (ACTE)

In 2012, **Achieve**, in partnership with the **Association for Career and Technical Education (ACTE)** and **National Association of State Directors of Career and Technical Education Consortium (NASDCTEc)**, surveyed eight states to learn how they are working to integrate the CCSS into CTE instruction. **Eight key strategies emerged**, including developing a common definition of college and career readiness, ramping up communications and information sharing among all stakeholders, and fostering collaboration among CTE and academic teachers.⁸ Policy leaders should ensure these key strategies are included among their state’s own efforts to implement college- and career-ready standards.

In addition, to ensure that both CTE and academic teachers are exchanging their unique experience and expertise, **Achieve** and **NASDCTEc** sponsored a pilot project in **Illinois, Nebraska, and New Jersey**. Math and CTE teachers were brought together to develop sample instructional tasks aligned to both the math CCSS and the knowledge and skills statements for several Career Clusters.⁹ The tasks were designed to be used in either CTE or traditional math courses, capitalizing on both academic and applied-learning strategies.

The Partnership for Assessment of Readiness for College and Careers (PARCC) & the Smarter Balanced Assessment Consortium (SBAC)

Most states are involved in one of two consortia that are currently designing assessment systems aligned to the CCSS. The consortia, both members of the *Career Readiness Partner Council*, will need to define specific

performance levels on the forthcoming assessments. The inclusion of career readiness in these definitions has proven challenging. The *Partnership for Assessment of Readiness for College and Careers* (PARCC) recently released its draft policy for making college-ready determinations in English language arts and mathematics, but has yet to form a draft policy for career readiness. The consortium acknowledges that career readiness is a priority that will be addressed following engagement with representatives from CTE and the business community.¹⁰ The *Smarter Balanced Assessment Consortium* (SBAC) is planning to convene experts from K-12, higher education, and the business community to talk about how the assessment might inform student and parent understanding of career readiness. Member states of each consortium now have the opportunity to bring their unique workforce development perspectives to this important conversation.

Preparation for Tomorrow

An initiative of the Southern Regional Education Board, *Preparation for Tomorrow* aims to develop intellectually challenging career/technical courses in high-demand, high-skill, high-wage career fields.¹¹ These courses will be joined

with a college-ready academic core to establish a pathway of study that gives students several options beyond high school. **Twelve states are participating**, and the courses will incorporate the appropriate CCSS in English language arts and mathematics. The courses will be designed by a panel of experts from business and industry, higher education, and high school to ensure the course material applies to the demands of postsecondary education and advanced career training. The effort also includes a two-week professional development program and follow-up for teachers who are adapting to this new form of instruction.

The National Board for Professional Teaching Standards

Strong CTE programs require highly effective instruction. The **National Board of Professional Teaching Standards** (NBPTS) is now engaged in revising its *National Board Certified Teacher Standards* for CTE teachers. As part of the revision process, NBPTS is assessing what meaningful integration of the CCSS and CTE looks like in the classroom. As the new standards are developed, best practices will emerge that can be used across the field.

What the Research Says

IN A STUDY BY THE NATIONAL RESEARCH CENTER FOR CAREER AND TECHNICAL EDUCATION, *MATH-IN-CTE*,

CTE TEACHERS WORKED WITH MATH TEACHERS TO EXAMINE THE CTE CURRICULA AND DEVELOP

“MATH-ENHANCED LESSONS.” THE STUDY FOUND THAT STUDENTS WHO RECEIVED “MATH-ENHANCED”

INSTRUCTION FOR ONE YEAR PERFORMED BETTER ON STANDARDIZED MEASURES OF ACHIEVEMENT THAN

STUDENTS WHO RECEIVED STANDARD CTE CURRICULA, WITHOUT ANY REDUCTION IN THEIR DEVELOPMENT

OF OCCUPATIONAL KNOWLEDGE AND SKILLS. A STUDY OF READING INSTRUCTION, *THE AUTHENTIC LITERACY*

STUDY, FOUND SIMILAR RESULTS, INCLUDING IMPROVED READING COMPREHENSION AND VOCABULARY LEARNING.

INDIVIDUAL STATE EFFORTS

In addition to activity at the federal and national levels, many efforts to improve CTE programs are happening in the states. Below are examples of how states are working to strengthen their CTE systems in a few key areas.

INTEGRATING CTE WITH ACADEMICS

In order to ensure that students are graduating college- and career-ready, many states are now actively fostering interaction between CTE and academics. In **Colorado**, the State Board of Education recently adopted revised CTE standards that are aligned with the CCSS for English language arts and mathematics.¹² Similarly, **California's** latest update of its *Career Technical Education Model Curriculum Standards* is intended to emulate the structure of the CCSS, and the state is now identifying where the CCSS fit within each industry.¹³ California's CTE stakeholders have been included in CCSS implementation planning from the beginning, which ensured meaningful steps would be taken to implement the CCSS in CTE classrooms.¹⁴ In **Virginia**, CTE teachers can access *Verso*, a web-based tool that links standards from their individual CTE courses with corresponding standards from the English language arts and mathematics *Virginia Standards of Learning*.¹⁵ For some classes, teachers can also find related lesson ideas.

Other states, like **Mississippi**, are providing CTE teachers with training and support to incorporate classroom literacy strategies. **Oregon** has capitalized on the *Math-in-CTE* model (see callout box on page 5: *What the Research Says*) and is now beginning a similar program, *Literacy-in-CTE*, to aid CTE teachers in incorporating literacy strategies into their technical instruction and to encourage collaboration with their academic counterparts.¹⁶ In **Indiana**, the state has developed a series of videos and PowerPoint® presentations on the CCSS that are customized to meet the needs of each CTE target audience (e.g., agriculture, business, etc.).¹⁷

Missouri is targeting professional development efforts to help CTE teachers integrate relevant CCSS content into their instruction. The Missouri Center for Career Education (MCCE) noticed that CTE teachers were not involved with statewide CCSS trainings. In response, they developed workshops and a number of online tools, such as math and English language arts glossaries and examples

of CCSS-integrated projects, to assist CTE teachers in understanding and using the CCSS.¹⁸ The **MCCE is planning to make these resources publicly available so that CTE teachers in Missouri and other states can readily access the information.** This effort is a perfect example of the intended benefits of state collaboration and the CCSS.

ENSURING ACCOUNTABILITY FOR CAREER READINESS

States are looking for ways to emphasize the importance of career readiness in their statewide accountability systems. At the secondary level, **Kentucky's** recently revised accountability system gives schools credit for graduates who meet career-ready benchmarks on the *Armed Services Vocational Aptitude Battery* (ASVAB) or *ACT WorkKeys*, or who receive an industry-recognized career certificate.¹⁹ Kentucky's system also gives schools bonus points for students who meet both college-ready benchmarks and career-ready benchmarks, encouraging collaboration and integration across disciplines.

KEEPING STUDENTS ON A PATH TO SUCCESS

The *Perkins Act* requires any district receiving funds to offer at least one program of study that “aligns secondary education with postsecondary education and leads to an *industry-recognized credential or certificate* at the postsecondary level or an associate or baccalaureate degree.”²⁰ Knowing that career readiness can be achieved through various forms of postsecondary training, states are looking to put students on paths towards the necessary credentials for their chosen fields.

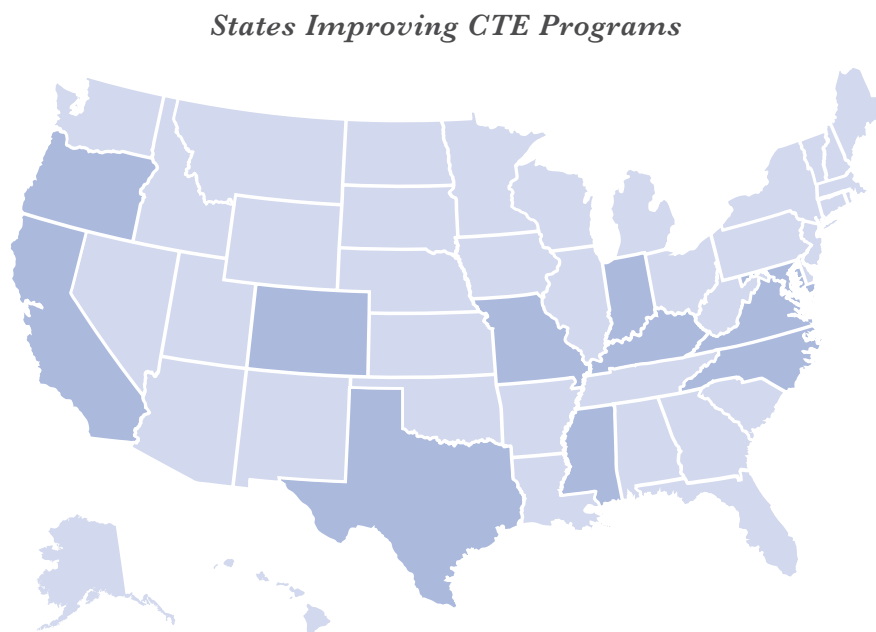
Some states have developed programs of study for the industries they deem most in demand or likely to grow.²¹ In **Maryland**, the **State Department of Education worked with industry advisory groups to identify 10 industry areas most representative of the state's economy.** The Department then identified programs of study within each cluster for a total of 38 state programs of study. Each pathway includes a college prep academic curriculum and a minimum of four credits in a CTE program, and some pathways give

students an opportunity to earn college credits.²² Since revamping their CTE programs in this way, **Maryland has seen an increasing percentage of CTE students earning industry certification related to their programs of study.** Academic results have also been promising: In 2010, the graduation rate for CTE students from grades 10 through 12 was 99.2 percent, compared to 91.3 percent for all students in grades 10 through 12.²³

COLLABORATION WITH BUSINESS AND COMMUNITY

It is impossible to align K-12 outcomes with workforce and postsecondary demands if the three sectors do not communicate in a meaningful way. States are looking for ways to encourage and require the academic and workforce systems to collaborate.

In June 2011, the **Texas** legislature passed a bill that allows approved “applied STEM courses” to be substituted for the fourth-year math or science requirements for the recommended high school program. In setting the criteria for these applied courses, **the legislature included that the courses be created by a recognized national or international business and**



industry group to prepare students for a certification or license, as well as qualify as a dual-credit course or an articulated postsecondary course. In addition, the standards for the course must be equivalent to the academic course for which the applied STEM course would substitute.²⁴

In **North Carolina**, the NC Community College System’s *SuccessNC* initiative is a systemwide effort with a goal of doubling the number of students completing career credentials by

2020.²⁵ The initiative includes collaboration with the K-12 system to promote college and career readiness and the articulation of secondary-level CTE courses into community college programs. The effort also includes curriculum improvement projects designed to update curriculum across the 58 campuses to ensure that students are being prepared for workforce needs and have the opportunity to earn national certifications.

| *Resources for Further Investigation* |

THE COMMON CAREER TECHNICAL CORE (CCTC): Find more information about the development of the CCTC, as well as links to the standards, at www.careertech.org/career-technical-education/cctc/info.html.

THE CAREER READINESS PARTNER COUNCIL: A list of member organizations, as well as the Council’s guiding document with its full definition of career readiness, can be found at www.careerreadynow.org.

COMMON CORE STATE STANDARDS & CAREER AND TECHNICAL EDUCATION: BRIDGING DIVIDE: This report, commissioned by Achieve, ACTE, and NASDCTEc, outlines strategies state and district leaders can leverage to ensure that implementation of the CCSS includes the CTE community. It can be accessed at <http://achieve.org/CCSS-CTE-BridgingtheDivide>.

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