

The Report of the Independent Advisory
Panel of the National Assessment of
Career and Technical Education

Putting “Career” in
“College and Career Ready”



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September 2014

This report of the Independent Advisory Panel for the National Assessment of Career and Technical Education (NACTE) was prepared in response to a requirement under the *Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV)*. The law directed the Secretary of Education to appoint an Independent Advisory Panel to advise the U.S. Department of Education on the implementation of the NACTE. The law also directed the panel to provide its own independent analysis of findings and recommendations based on the NACTE. This report contains that independent analysis, and the judgments expressed in it are solely those of the panel and do not represent the views of the U.S. Department of Education.

September 2014

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Executive Summary

The National Assessment of Career and Technical Education (NACTE) is charged with evaluating the implementation and outcomes of the *Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV)*. As part of *Perkins IV*, the U.S. Secretary of Education commissioned an Independent Advisory Panel (IAP) to provide guidance on NACTE and to prepare an independent report. This document constitutes the IAP's report.

Having followed the progress of the NACTE over five years, the IAP concludes that career and technical education (CTE) can play an important role in preparing young persons for college and careers, a key national goal of the U.S. education system. However, the IAP has identified three major challenges that must be addressed if CTE is to maximize its contributions, and reauthorization of the *Perkins Act* presents a timely opportunity to enact these improvements.

1. Integrate Career and Technical Education with Broader Education Reform

Challenge

CTE in the United States has developed largely independently of broader education reforms. Recent decades have witnessed the emergence of innovative forms of CTE, but these advances are vulnerable because they are not regarded as essential to the major goals of U.S. education. CTE risks being left out of far-reaching reforms such as the Common Core State Standards (CCSS).

Recommendations

- Eliminate bureaucratic and financial incentives for maintaining CTE as a silo of isolated activities. Instead, promote integration of CTE activities within mainstream education reforms.
- Develop expectations for the outcomes of CTE that are related to the broader college- and career-ready agenda and fold them into primary accountability systems for schools, districts, and states.

2. Develop Greater Coherence between Secondary and Postsecondary Career and Technical Education

Challenge

Perkins IV nonregulatory guidance has improved the coherence of CTE programs of study that span secondary and postsecondary levels. However, many gaps remain, particularly in the area of performance metrics that fail to connect secondary and postsecondary program offerings.

Recommendations

- Strengthen requirements for articulation agreements (i.e., guaranteed transfer processes) between secondary and postsecondary institutions as integral to programs of study.

- Promote alignment and coordination across related federal programs—including the *Elementary and Secondary Education Act*, the *Perkins Act*, and the *Workforce Investment Act*—to strengthen opportunities for successful transitions within career pathways.
- Provide incentives for the use of industry credentials to measure technical achievement and to create a system of stackable credentials (i.e., a sequence of earned credentials) that facilitate student progression in a career pathway.
- Allow relevant postsecondary nondegree courses to be recognized in a program of study.

3. Gather Robust, Actionable Information about the Implementation and Outcomes of Career and Technical Education

Challenge

Consistent and timely data are lacking for a comprehensive evaluation of the implementation and outcomes of CTE. Part of the problem is that the NACTE begins at the same time as the *Perkins Act* is reauthorized, which means that the NACTE begins before implementation occurs and ends before the outcomes of the *Perkins Act* can emerge. Yet another major challenge is that, with few exceptions, longitudinal data at the individual student level are not available to enable evaluators to assess CTE effects on labor market outcomes.

Recommendations

- Support states in their efforts to build systems that link administrative data sets, and facilitate research use of these data to answer important CTE-related questions.
- Provide clearer definitions of CTE outcomes, and set standards for the validity and reliability of participation and outcome measures.
- Encourage states to develop a small number of actionable indicators to monitor CTE implementation as well as progress toward college and career readiness and occupational goals.
- Shift the timing of the national assessment to begin after federal guidance has been put into place and to continue beyond the legislative timeline so as to allow assessment of outcomes as well as implementation.

Conclusions

Continued federal investment in CTE is warranted, but today’s CTE must make itself part of the repositioning of the broader landscape of K–12 and postsecondary education for the 21st century. It must embrace the new Common Core State Standards to support student academic achievement as well as students’ long-term success. CTE must reposition itself not just as a vocational alternative to college prep but as a pathway into postsecondary programs that links degrees and credentials to occupations.

CTE is part of the long-term solution to America’s economic recovery and sustained prominence as the world’s largest economy. CTE can take a leadership role in preparing students for meaningful, sustainable careers in a globally competitive 21st-century work force that will need higher and more applied levels of science, math, communications, and digital skills.

Putting “Career” in “College and Career Ready”

Introduction

The *Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV)* called on the U.S. Secretary of Education to appoint an Independent Advisory Panel (IAP) to provide guidance on the topics and methodology of the National Assessment of Career and Technical Education (NACTE) and to present an independent report on the findings of the assessment. This document is the IAP’s independent report. It addresses the place of career and technical education (CTE) in the U.S. education system; the relation between our changing society, education reform in general, and the need to improve CTE; and what Congress can do to improve future authorizations of the *Perkins Act*.

Career and Technical Education in the 21st Century

Some readers may be surprised to hear that CTE can play a prominent role in U.S. education in the 21st century. After all, vocational education dates back more than a century to a time when many students went to high school to learn a trade (Kliebard, 1999). Today, more than 80 percent of American youth enroll in some form of postsecondary education (Aud et al., 2010). Yet, as President Barack Obama has declared, 21st-century education must prepare our young people for college *and* careers.¹ As the NACTE shows, a wider array of students than ever is being exposed to career and technical subjects in high school courses, and states are developing programs of study to link secondary and postsecondary training in occupational fields.

In the past two decades, the labor market has changed in dramatic ways that make CTE more important than ever. Low-skill jobs are declining in number and value as they are replaced by new technologies or by work performed abroad (Bills, 2004; Goldin & Katz, 2008). These trends have increased the demands for medium- and high-skill jobs, particularly technical, health care, and other jobs that cannot be automated or outsourced (Levy & Murnane, 2004; Carnevale, Rose, & Cheah, 2011). Most of these jobs require some college education (Grubb, 1996), and all require social and problem-solving skills, not just the academic skills traditionally emphasized in schools (Murnane & Levy, 1996; Rosenbaum, Deil-Amen, & Person, 2006). These changes have happened so quickly that education has not kept up with contemporary workplace requirements (Bills, 2004).

CTE programs are well suited to providing the skills to match workforce needs. Indeed, the role of CTE in achieving college- and career-ready aims has been articulated by a wide range of national leaders. For example, a report on *Pathways to Prosperity* by scholars at Harvard University argued that school reform should include more emphasis on career-driven alternatives to a four-year college education (Schwartz, Ferguson, & Symonds, 2011). Echoing the William T. Grant Foundation’s (1988) classic report on *The Forgotten Half* and exploring themes developed in Rosenbaum’s (2004) *Beyond College for All*, the Harvard study decries our national underinvestment in youth who do not obtain four-year college degrees:

¹ <http://www.whitehouse.gov/the-press-office/president-obama-calls-new-steps-prepare-america-s-children-success-college-and-care>

Our current system places far too much emphasis on a single pathway to success: attending and graduating from a four-year college after completing an academic program of study in high school. Yet as we've seen, only 30 percent of young adults successfully complete this preferred pathway, despite decades of efforts to raise the numbers. And too many of them graduate from college without a clear conception of the career they want to pursue, let alone a pathway for getting there (24).

The study recommends a comprehensive network of pathways that would include three elements: (1) embracing multiple approaches to help youth make the transition to adulthood; (2) involving the nation's employers in activities such as work-based learning; and (3) creating a new social compact with young people.

U.S. Secretary of Education Arne Duncan has embraced the views of the *Pathways to Prosperity* report:

First, for far too long, CTE has been the neglected stepchild of education reform. That neglect has to stop. And second, the need to re-imagine and remake career and technical education is urgent. CTE has an enormous, if often overlooked impact on students, school systems, and our ability to prosper as a nation.²

Recognition of the potential contributions of CTE is not limited to policy researchers and officials at the federal level. For example, the National Governors Association Center for Best Practices (2007) has stated that CTE “rests at the nexus of governors’ efforts to improve their states’ K–16 education system and develop an economy supportive of innovation.... CTE should be an important aspect of a state’s broader high school redesign strategy (1).”

These views add up to a vision of 21st-century U.S. education in which CTE plays an important role. Because students from all backgrounds and future directions are enrolling in secondary CTE courses, and because a four-year college is not the best option for every student, continued investment in CTE is warranted. Yet the findings of the NACTE—and our own experiences and observations—indicate that several improvements are necessary if CTE is to achieve its potential to help prepare young persons to meet 21st-century challenges.

Challenges and Recommendations for Career and Technical Education

In our judgment, the NACTE reveals three key challenges that must be addressed to maximize the contributions of CTE:

- Integrate CTE with broader education reform.
- Develop greater coherence between secondary and postsecondary CTE.
- Gather robust, actionable information about the implementation and outcomes of CTE.

The remainder of this report addresses each of these challenges in turn.

² <http://www.ed.gov/news/speeches/new-cte-secretary-duncans-remarks-career-and-technical-education>

Integrate Career and Technical Education with Broader Education Reform

The most significant shift in education policy over the past five years is the focus on preparing students to be college- and career-ready as the goal of public education. This agenda builds on the standards and accountability work of the past 20 years and makes expected outcomes for students more explicit and more consistent.

Policymakers have advanced the college- and career-ready agenda in a number of ways. For example, many states have offered subsidies and other incentives to increase the number of students experiencing college-level work while still in high school, through Advanced Placement courses, dual enrollment, and other strategies. Several states have adopted college admissions tests (ACT and SAT) as required examinations for all students. And many states have revised coursetaking requirements to increase the percentage of students exposed to a college prep curriculum.

One of the most far-reaching developments to emerge from the focus on college and career readiness is the Common Core State Standards Initiative (CCSS), a multistate effort to “provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them.”³ Assessments aligned to the CCSS are being developed that will help enable improved longitudinal and system-by-system comparisons of academic performance. Teacher effectiveness has also received significant attention from policymakers interested in improving public education. Analysis of student test scores reveals a wide range in teachers’ impact on student learning (Rivkin, Hanushek, & Kain, 2005). Policy innovations are being developed to make this information carry weight in teacher evaluations as well as in the design of professional development and support for and evaluations of the preparation programs that train teachers within and beyond the university setting.

The development of CTE has proceeded largely independently of these education reforms. CTE is not reflected in prominent education reforms such as the *No Child Left Behind Act of 2001 (NCLB)*, nor has CTE featured significantly in the more recent turn to competitive grants such as Race to the Top or the Investing in Innovation fund—despite the focus on college and career readiness as a central theme of Race to the Top. Instead, policymakers continue to address CTE as a separate, discrete area of education with its own funding, evaluation, and accountability rules. Rather than protecting or strengthening CTE, this arrangement has isolated CTE from mainstream education reform.

For example, having separate accountability measures for CTE has reinforced the perception of CTE as subordinate to mainstream reform. Including test scores in accountability for secondary CTE programs might have appeared as a move toward integrating CTE into broader reform efforts, but in practice it made little difference because tests required under *NCLB* usually occur prior to students’ exposure to CTE courses. And while the acronym CTE, with its explicit focus on career education, suggests that CTE should be a central strategy in pursuing college and career readiness, in practice, exemplary CTE programs are seen as exceptions to mainstream options. CTE is still perceived by many as an alternative to rigorous academics—a separate track for students who are not college bound.

³ <http://www.corestandards.org/>

Likewise, federal policy on secondary-to-postsecondary transitions has attempted to integrate CTE across education levels with school-to-work, tech-prep, and, most recently, programs of study. Yet this work has been too tentative and has left in place too much that is not aligned. For instance, as noted by the NACTE, the *Perkins IV* reauthorization demanded that each school district offer at least one program of study that articulates through to a postsecondary credential or degree, but did not require districts to track what percentage of CTE students completed a program. This weak policy approach risks marginalizing CTE in the college- and career-ready agenda.

CTE could be a vital component of ensuring that students emerge from public education ready for college and careers. Secondary and postsecondary credentials are critical to employment at a living wage in the 21st century, and youth workforce development programs tied to secondary and postsecondary pathways can provide a valuable bridge to success for youth and young adults. For example, participation in CTE courses, coupled with internships in emerging industries, can help students prepare for postsecondary education and careers. Career and Technical Student Organizations (CTSOs), which support school- and work-based learning, also respond to students' interest in college and career readiness. CTOSs serve as leadership and employability laboratories for students and offer a means to enhance 21st-century skills. According to a report from the National Research Center for Career and Technical Education, higher levels of involvement in CTOSs were linked to greater academic motivation and engagement, higher grades, college aspirations, and employability skills (Alfeld et al., 2007). The report identified participation in competitions as a key element in promoting these positive outcomes.

At the postsecondary level, CTE courses and programs offer many of the best practices identified in national initiatives. For example, nursing programs incorporate many of the principles advocated by the national Completion by Design initiative (<http://www.completionbydesign.org>; see Karp, Jacobs, & Hughes, 2002). One key aspect of student success is the ability of students to use their postsecondary training not just to find jobs but to build long-term careers. Some community-based organizations operating education programs blend CTE funding with resources from other sources to create education pathways leading to industry-recognized credentials. These organizations connect low-income youth enrolled in CTE courses and programs with community-based organizations to provide support services, tutoring, mentoring, work experience, and internships as they work to attain a secondary education credential (Thakur & Henry, 2005).

Rather than remaining out on a limb, the promise of CTE lies in moving to the trunk of the tree by integrating more fully with academic education. CTE has tangible assets to bring to the academic side of schools, in both secondary and postsecondary settings. For example, the engaging pedagogy of engineering design—applied, integrated, situated, team taught, and group learned, alternatively assessed and experiential—could be used in academic as well as in technical subjects. At the same time, CTE must be linked with college-going skills. An infusion of design methods of teaching throughout the curriculum, combined with higher academic standards in CTE courses, could help break the cultural divide between technical and academic pursuits.

Integrating CTE with broader educational reform will not be simple. Every academic discipline will be challenged to meet the rigorous expectations of CCSS, for example, but perhaps none more than CTE. The National Assessment of Vocational Education, precursor to the NACTE, documented that verbal test scores of CTE teachers were lower, on average, than those of elementary teachers (Silverberg, Warner, Fong, & Goodwin, 2004), raising concerns about whether CTE teachers have the requisite skills to teach the high-level reading, writing, speaking, and listening skills demanded by CCSS. Likewise, incorporating CTE teachers into new teacher evaluation systems involves particular difficulties of measuring effectiveness in the CTE context. It is possible that the teacher effectiveness agenda will be a springboard for broader integration of academic and technical education because it will force system leaders to wrestle with the learning expectations and demonstrated outcomes sought from CTE programs.

In response to these challenges and the opportunities that CTE affords to strengthen the college- and career-readiness agenda, we offer two sets of recommendations for policymakers:

- Eliminate bureaucratic and financial incentives for maintaining CTE as a silo of isolated activities. Instead, promote integration of CTE activities within mainstream education reforms.
- Develop expectations for the outcomes of CTE that reflect the college- and career-ready agenda, and fold them into the primary federal and state accountability systems for schools and districts.

Develop Greater Coherence between Secondary and Postsecondary Career and Technical Education

Perkins IV continues to emphasize connections between secondary and postsecondary education. These ties occur not only through articulation agreements (guaranteed course transfer policies) but also with programs of study that align CTE secondary and postsecondary programs to provide students with a coordinated, nonduplicative progression of courses from one learning level to another. Program articulation is also encouraged between and among two- and four-year colleges, private career schools, apprenticeship programs, and local school districts. Some programs offer students the option for concurrent or dual enrollment, allowing them to earn immediate credit toward college and high school completion. Such vertical coherence can save students time and money and can result in earlier entry into a career pathway.

Despite this progress, barriers still stand in the way of creating seamless linkages between the secondary and postsecondary levels. Some secondary CTE programs of study have no credit-bearing counterpart at the postsecondary level, and many apprenticeship programs do not offer any credit for knowledge and skills acquired at the secondary level. Industry certifications may be offered at the secondary and postsecondary levels, but they may not be recognized in CTE programs of study. These challenges pose barriers to achieving the aligned system of CTE envisioned in *Perkins IV*.

At the postsecondary level, many students take non-credit-bearing courses that result in knowledge and skills that are in demand by industry but are not recognized in *Perkins IV*. In many technology centers and community colleges, adult enrollments in courses that do not apply

to a degree constitute the majority of skills-based enrollment. Many of these enrollments exceed for-credit enrollments in workforce preparation programs, yet these nondegree enrollments are not captured in *Perkins IV* data and thus *Perkins IV* cannot provide a complete picture of skills training and education in the United States.

Greater coherence between secondary and postsecondary education, and a wider reflection of these connections in workforce development policies, would offer more powerful leverage to support a student’s journey on a pathway that leads to a living wage. The following recommendations are intended to advance these aims:

- Strengthen requirements for articulation agreements (i.e., guaranteed transfer processes) between secondary and postsecondary institutions as integral to programs of study.
- Promote alignment and coordination across relevant federal programs—including the *Elementary and Secondary Education Act*, the *Perkins Act*, and the *Workforce Investment Act*—to strengthen opportunities for successful transitions within career pathways.
- Provide incentives for the use of industry credentials to measure technical achievement and to create a system of stackable credentials (i.e., a sequence of earned credentials) that facilitate student progression in a career pathway.
- Allow relevant postsecondary nondegree courses to be recognized in a program of study.

Gather Robust, Actionable Information about the Implementation and Outcomes of Career and Technical Education

The data available to assess CTE are often not up to the task of providing the kinds of answers that are expected of the NACTE. In the IAP’s judgment, the lack of sufficient data is the most serious barrier to developing a full assessment of CTE outcomes and to providing recommendations designed to improve outcomes under reauthorization of the *Perkins Act*. Equally important, the insufficiency of data is a key challenge facing CTE administrators charged with implementing CTE in schools and colleges across the country. CTE administrators cannot track students from high school to college or the workplace, so they cannot begin to examine the impact of their programs on college and career readiness and success.

Timely and Consistent Data Are Needed

Assessing the impact of the *Perkins Act* on student achievement and attainment requires timely access to longitudinal data at the individual student level on students’ coursetaking behaviors, proficiency in core subject and career areas, and post-high school behaviors (e.g., postsecondary education, workforce activity). At this time, such data are not available nationally and only exist in a few states, such as Texas and Florida. These jurisdictions have created data systems that integrate high school records with those from postsecondary education, including elements such as high school and college transcripts, as well as employment data, including wage records, to permit examination of short- and long-term effects of programs and policies.⁴ Methods for

⁴ See, for example, the Florida Education and Training Placement Information Program (FETPIP): <http://www.fldoe.org/fetpip/>

linking these data are relatively straightforward and inexpensive, and such links offer enormous opportunities for assessing key outcomes.

Further, even though *Perkins IV* continued the move toward the integration of academic and technical content by linking academic and CTE accountability measures at the secondary level, policymakers nonetheless lack evidence of CTE's academic outcomes. Assessments of secondary academic performance are typically administered before students enroll in CTE courses, so it is difficult to monitor the academic achievement growth of CTE students.

In addition to data availability concerns, data quality is an important issue. *Perkins IV* identified core indicators of participation and performance for both secondary and postsecondary CTE students. The legislation also required states to ensure that the indicator data were valid and reliable. However, *Perkins IV* did not set forth standards of validity and reliability for the indicators, and each state was allowed to choose its own definition of the indicators and come up with its own reporting system. The NACTE report indicates that states made progress in promoting quality data, but it is clear that the lack of standardized data definitions and reporting mechanisms across states continues to hamper the effort to hold states accountable for using *Perkins* funds to ensure high-quality, effective CTE.

To provide additional information to states on accountability measures, the U.S. Department of Education offered nonregulatory guidance on several aspects of accountability. Case studies in the NACTE revealed that, on the one hand, the flexibility granted to states through the nonregulatory guidance facilitated state construction of indicators. On the other hand, the resulting diversity of indicators made evaluation of progress across states difficult and thus undermined the accountability system that the guidance was supposed to support.

Actionable Data Are Needed

Now more than ever, schools, districts, and states are required to collect and report data on everything from basic operations (e.g., expenditures) to student and parent perceptions of programs. Collecting and reporting data are time-consuming activities, and having *more* data is not the same as having *actionable* data. To monitor CTE implementation and outcomes, practitioners and policymakers need a relatively small number of clear, consistent, well-defined, and accurately measured indicators to guide decision making. For example, statewide longitudinal data systems should include measures of CTE student outcomes and program quality. The federal government already has invested tens of millions of dollars in these systems, which will be the primary sources of data for state and district leaders. For CTE outcomes to be a part of leadership deliberations, the data need to be in the main data system rather than maintained in a separate database.

In addition to developing measures for students who concentrate in or complete a specific program of study in CTE, outcome measures that prioritize career readiness should be developed for all students. There are core employability skills—oral and written communication skills and ability to work in groups, for instance—that are important to develop and assess in all students. CTE leaders should be brought into a process that looks at the coverage of new assessments aligned to the CCSS, and a process should be convened to identify critical career-readiness skills that have not yet been well measured so that these gaps can be addressed.

Policy Changes Take Time to Impact Student Outcomes

Perkins IV requires that NACTE analyze the academic, technical, and employment outcomes of CTE. However, implementation takes time, and additional time is needed for implementation to enhance outcomes. After reauthorization in 2006, states were given a year to prepare for changes required under *Perkins IV*. By 2007–08, state and local actors were defining programs of study, creating accountability systems, developing courses and teacher training, and so on. Any improvements to student CTE experiences as a result of *Perkins IV* will have been short-lived by the time the NACTE report is due. Thus, evaluating the outcomes of *Perkins IV* during the reauthorization period is challenging and potentially misleading.

Based on the issues raised by data availability, quality, and timing, we offer the following recommendations for federal policymakers:

- Support states in their efforts to build systems that link administrative data sets, and facilitate research use of these data to answer important CTE-related questions.
- Provide clearer definitions of CTE outcomes, and set standards for the validity and reliability of participation and outcome measures.
- Encourage states to develop a small number of actionable indicators to monitor CTE implementation as well as progress toward college and career readiness and occupational goals.
- Shift the timing of the national assessment to begin after federal guidance has been put into place, and continue beyond the legislative timeline, to allow assessment of outcomes as well as implementation of CTE. An interim report can be issued shortly before reauthorization, and a final report can be issued using data that represent the time frame within which reauthorization occurred and after reauthorization has had time to change students' experiences and outcomes.

Conclusions: A Case for *Perkins* Renewal

CTE has weathered many storms in the past, but it will face even more daunting challenges in the near future. The CCSS for college and career readiness and the Next Generation Assessments will have particular impact. The demands for accountability and proof of performance that were ushered in by the standards and accountability movement more than a decade ago are likely to become more highly valued as workforce opportunities in the technology-rich knowledge economy demand higher-level skills from new workers.

Yet these rising demands come at a time of budget cutting, spending restraints, and anxiety about America's lackluster performance on international comparisons of student achievement and attainment. Major shifts in federal and state education policy are happening in the aftermath of an economic downturn and a steady but slow recovery that figure prominently in public concerns. If all politics are truly local, no local politics are more front and center than the perfect storm of high unemployment, economic malaise, and the growing threat to America's decades-long dominance as the world's industrial and financial leader. This convergence of a growing

demand for major improvement in American education and of a national economic and employment crisis of historic proportions creates a double-headed strategic challenge for CTE.

The Challenge for 21st-Century Career and Technical Education

Today's CTE must make itself part of the repositioning of the broader landscape of K–12 education for the 21st century. To take on an important role in improving outcomes for U.S. public education, CTE must enable student academic achievement under the new CCSS. Just as the standards seek to break down the old dichotomy between preparing for college *or* careers, so CTE must reinvent itself not just as a vocational alternative to college prep but as a pathway to meaningful opportunities in the worlds of work *and* postsecondary education. In embracing the CCSS, CTE can ensure its role as a vital part of the long-term solution to America's economic recovery and the country's sustained prominence as the world's largest economy. CTE can take a leadership role in preparing students for a globally competitive, 21st-century labor market that requires participants to have higher and more applied levels of science, math, communications, and digital skills, as defined in the CCSS.

The new CCSS for college and career readiness reflect a widely held belief in the need to raise the bar academically for *all* students. The new standards are not merely more rigorous updates of past standards but also include greater emphasis on application of knowledge, logical reasoning, and problem solving—skills that are central to high-quality CTE. CTE leaders and teachers can support their academic colleagues by identifying applications of academic standards and by continuing the trend toward integration of academic and career/technical content in CTE instruction.

The pending Next Generation Assessments that will support the CCSS will reflect a similar higher measure of both rigor *and* relevance, including performance-based demonstration of the ability to apply learning to solve problems. More than on current state tests, students will be asked to show what they can do and not just what they have memorized. Assessments will include collaborative projects, demonstrations, exhibits, and products of learning. Authentic assessment and demonstration of skill and learning are inherent to CTE. CTE leaders and teachers can support their academic colleagues in preparing students to meet these new standards, including generic workplace readiness skills such as cooperation, planning, listening, presenting, and digital literacy.

The Federal Role in Career and Technical Education

Variety and decentralization in CTE have fostered local innovation and, ostensibly, responsiveness to local demands, yet leave a field that is uncoordinated with other initiatives in education and workforce development and unable to assess quality or outcomes consistently. Meanwhile, national developments increasingly have focused on ensuring that students are prepared for postsecondary education and career options. The last two authorizations of the *Perkins Act* have encouraged integration of rigorous academics with CTE and emphasized connections between secondary and postsecondary programs.

The next authorization of the *Perkins Act* should maintain this focus but define the federal role in more limited, strategic ways. Federal funding for CTE is a relatively small portion of the total

funding for these programs, so it is essential to consider how federal policy is designed to strengthen, support, and extend CTE. Throughout this report, we have explained that the federal government can support CTE by integrating its CTE program with broader national education reforms; by requiring states and localities to build greater coherence between secondary and postsecondary CTE; and by requiring states and localities to gather a more focused set of actionable indicators of CTE. All of these recommendations are intended to support a tighter integration of secondary and postsecondary CTE with workforce development, which we regard as an appropriate target for the federal role in CTE.

Federal policy supports CTE in secondary and postsecondary education and also supports workforce development boards—but supports them separately and in isolation. If one essential goal of CTE is to ensure education that prepares young people for the opportunities that exist in the economy, then greater coordination is essential. Inadvertently, federal policy may be exacerbating the disconnect through discrete federal programs, with each program having its own data demands, accountability measures, and reporting systems.

A *Perkins Act* reauthorization should be considered in conjunction with the *Workforce Investment Act*. Reporting requirements should be integrated so that there is a single, unified set of data with which to evaluate these efforts. Governors should be required to certify the steps that have been taken to align the work of CTE and workforce development; while this coordination can and should take different forms in different states, it will not happen without leadership and focus.

Given the urgency of improving education outcomes and the constrained fiscal environment, it is essential to marshal resources efficiently and to ensure that every program receiving federal funds is serving students well. Under current policy, outcome measures are unreliable and often ignored, linkages between secondary and postsecondary programs are haphazard, and measures of CTE success are not adequately aligned with state workforce investments. When the *Perkins Act* is reauthorized, these issues should be addressed.

Toward CTE Renewal

The pending renewal of the *Perkins Act* coincides synergistically with other major K–12 education initiatives. The vision of school improvement that has informed these federal and state reforms is likely to be reflected in the renewal of the *Perkins Act*, including accountability and performance evaluation of both students *and* teachers as well as demands for proof of effectiveness and for competitive rather than entitlement federal funding. CTE policymakers cannot ignore or resist the bipartisan, as well as public- and business-supported, groundswell for change. CTE must take on a collaborative, creative, and constructive position of support for 21st-century learning. CTE planners must be willing not just to think outside the box, but create a *new* box, one based on the convergence of CTE and academics, more demanding program content, and recognition of the need for both rigor and relevance for *all* students. The challenge is clear, and so is the opportunity.

References

- Alfeld, C., Stone, J. R., Aragon, S. R., Hansen, D. M., Zirkle, C., Connors, J., Spindler, M., Romine, R. S., & Woo, H.-J. (2007). *Looking inside the black box: The value added by Career and Technical Student Organizations to students' high school experience*. St. Paul, MN: National Research Center for Career and Technical Education.
- Aud, S., Hussar, W., Planty, M., Snyder, T., Bianco, K., Fox, M., Frohlich, L., Kemp, J., & Drake, L. (2010). *The condition of education 2010* (NCES 2010-028). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
- Bills, D. (2004). *The sociology of education and work*. Oxford, UK: Blackwell.
- Carnevale, A., Rose, S. J., & Cheah, B. (2011). *The college payoff: Education, occupations, lifetime earnings*. Washington, DC: Georgetown University Center on Education and the Workforce.
- Goldin, C., & Katz, L. (2008). *The race between education and technology*. Cambridge, MA: Harvard University Press.
- Grubb, N. (1996). *Working in the middle*. San Francisco, CA: Jossey-Bass.
- Karp, M. M., Jacobs, J., & Hughes, K. L. (2002). *Crisis and credentials: The American nursing shortage and the debate over educational standards*. Washington, DC: Community College Press.
- Kliebard, H. M. (1999). *Schooled to work: Vocationalism and the American curriculum, 1876–1946*. New York, NY: Teachers College Press.
- Levy, F., & Murnane, R. (2004). *The new division of labor*. New York, NY: Russell Sage Foundation Press.
- Murnane, R., & Levy, F. (1996). *Teaching the new basic skills*. New York, NY: Free Press.
- National Governors Association Center for Best Practices. (2007). *Retooling career technical education* (Issue Brief). Washington, DC: National Governors Association Center for Best Practices. Available at: <http://www.nga.org/files/live/sites/NGA/files/pdf/0706TECHED.PDF>.
- Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica*, 73, 417–458.
- Rosenbaum, J. (2004). *Beyond college for all: Career paths for the forgotten half*. New York, NY: Russell Sage Foundation Press.
- Rosenbaum, J., Deil-Amen, R., & Person, A. (2006). *After admission*. New York, NY: Russell Sage Foundation Press.

Schwartz, R. C., Ferguson, R., & Symonds, W. C. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*. Cambridge, MA: Harvard Graduate School of Education.

Silverberg, M., Warner, E., Fong, M., & Goodwin, D. (2004). *National Assessment of Vocational Education. Final report to Congress*. Washington, DC: Office of the Under Secretary, Policy and Program Studies Service, U.S. Department of Education.

Thakur, M., & Henry, K. (2005). *Financing alternative education pathways: Profiles and policy*. Washington, DC: National Youth Employment Coalition.

William T. Grant Foundation. (1988). *The forgotten half: Pathways to success for America's youth and young families*. New York, NY: Commission on Work, Family and Citizenship for the William T. Grant Foundation.