

State Secondary Career and Technical Education Standards: Creating a Framework from a Patchwork of Policies

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Abstract

Many states are currently working to define secondary career and technical education (CTE) content standards that specify the knowledge and skills students are expected to master in CTE program areas. This study explores the progress and status of states in developing statewide secondary CTE standards systems. An exhaustive online query of CTE standards systems across the 50 states and the District of Columbia was conducted in 2006, proceeded and validated by targeted follow-up interviews with state officials. The results show that Louisiana, Mississippi, North Carolina, and Ohio are at the forefront of CTE standards development in ways consistent with recent federal legislation. The article also describes the relationship between the CTE standards system and other standards systems in each state (e.g., secondary academic standards, postsecondary technical standards). Overall, there is a great deal of variation in the secondary CTE standards systems across states, thwarting cross-state comparisons for both researchers and policymakers.

Introduction

Content standards for career and technical education (CTE), sometimes called skill standards, have long been a part of the policy discussion regarding secondary CTE. Developing skill standards for CTE involves the work and collaboration of industry and education. This study documents the progress and status of secondary CTE standards development across the states.

Spill (2002) articulated a common definition for the term skill standards: “performance specifications that identify the knowledge, skills, and abilities an individual needs to succeed in the workplace” (p. 3). Spill noted that national skill standards promote education and training consistency as well as worker mobility, because the certificates workers earn are recognized elsewhere. Skill standards are

industry-driven, determined by methodologically appropriate research or analysis, and carefully validated by employers in the region in which they are applied.

In education, standards are important elements of school accountability because standards articulate expectations for student performance. Whether focused on academic or CTE courses, standards clarify expectations for measuring student performance through a sequenced curriculum, so that students either progress to more advanced skill levels or their progression is slowed or stopped if adequate competence is not demonstrated through testing (Rahn, O'Driscoll, & Hudecki, 1999; Wills, 1993).

Conceptual Framework

This study began with the assumption that content standards, whether in academic or CTE subjects, are a component of education reform that changes practice through various policy means, including the development of curriculum frameworks around the standards, providing professional development to teachers so that they can incorporate the standards into their teaching, and requiring that schools be held accountable for student mastery of the standards, usually through assessment (Swanson & Stevenson, 2002). The implementation of standards-based reform necessitates such a broad policy framework.

Content standards in high school were first articulated as a priority and developed for academic subjects. Many state education agencies developed academic content standards in earnest after the publication of *A Nation at Risk: The Imperative for Educational Reform* (National Commission on Excellence in Education, 1983), which decried the U.S. education system's inability to prepare young people for work compared to the education systems of competitor nations. Following individual state initiatives, the Improving America's Schools Act of 1994 required states to establish academic content and performance standards and to implement assessments that measured student achievement. By the time of the No Child Left Behind (NCLB) Act of 2001, all 50 states and the District of Columbia already had some type of academic standards and assessment system for their K-12 schools (Goertz, Duffy, & Carlson Le Floch, 2001).

High school CTE has a separate historical development and federal legislative stream from that of secondary academic education. However, the shift towards standards and accountability as policy drivers occurred in CTE as in academic areas. Another influential report, *America's Choice: High Skills or Low Wages* (Commission on the Skills of the American Workforce, 1990), claimed that the nature of work and technology were changing in ways that required more judgment and responsibility on the part of front-line workers. These changes necessitated changes to the constellation of knowledge, skills, and attitudes that entry-level workers needed. This report identified the lack of clear standards in career and technical training as one of several barriers to achieving a highly skilled workforce in

the U.S. Only with a strong system of standards and assessment could academic preparation, CTE, and other workforce development efforts better fit employer needs and expectations.

The subsequent reauthorization of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990, the federal legislation supporting CTE, required states to develop a standards system as well as performance measures. At that time, however, compliance with the law was limited to state reports on the progress of the development of such an accountability system. Even so, by 1993, all 50 states reported that they already had or were developing performance measures and standards for secondary CTE. However, the standards varied greatly from state to state (McCaslin & Headley, 1993).

The first reauthorization of federal CTE legislation after the passage of NCLB was the Carl D. Perkins Career and Technical Education Act of 2006 (hereafter, Perkins IV). This law reflected NCLB's strong emphasis on accountability and results. The federal government required states to report on technical skill attainment using assessments aligned with industry-recognized standards where available. Sanctions for failing to satisfy the law's requirements became more specific than in previous Perkins legislation. In addition, Perkins IV required states and localities to provide sustained professional development, integrate related academic subject matter, and to align with postsecondary programs, all consistent with the policy framework of standards-based education.

Problem Statement

As with academic education, there has been a shift in emphasis to more standards-driven policies in CTE. This new direction for CTE, in which students must demonstrate mastery of rigorous industry standards, is in line with current educational trends and with public expectations (Lynch, 2000). However, little detail is known about the CTE standards systems across the states: the extent of their alignment with secondary academic standards and postsecondary technical standards, and how states monitor the implementation of their CTE standards policy. As a first step in examining this new direction and its impact on practice, the extent to which standards exist at the state level needs to be determined. This study, therefore, documented the status of secondary CTE standards systems as the era of Perkins IV began.

Research Questions

The main purpose of this study was to describe what is known about the secondary CTE standards system of each state, as a first step to conducting research on whether and how standards-based reform has changed practice in secondary CTE programs. A broad set of research questions guided the study and were examined in

each state (Castellano, Harrison, & Schneider, 2007); only a subset of those questions are presented and include:

1. Has the state developed a system of CTE standards?
2. What state funding is available for secondary CTE programs?
3. Have the state academic standards been crosswalked or integrated into CTE courses?
4. Are the CTE standards aligned with the state's postsecondary technical standards?
5. How does the state ensure that the established standards are reflected in practice?

Methodology

In order to explore the progress and status of states in developing secondary CTE standards systems, the study's design included searches of state departments of education (DOE)¹ Web site content for information on each state's CTE standards system. The results of the searches were then validated through targeted follow-up interviews with state officials.

Data Collection

The target population consisted of the 50 states and the District of Columbia. Most states with CTE standards systems have posted the standards for each program area online. After the online resources for each state were exhausted, the state CTE directors were contacted to set up appointments for interviews. Some state directors made referrals to other specialists in the agency or included those specialists in the interviews. An official from each participating state was interviewed, focusing on the information still missing for each state but also verifying the Web site content that had been gathered.

Throughout the summer and fall of 2006, the team continued conducting Web searches of state DOE Web sites and conducting interviews with state CTE officials. Despite repeated attempts, it was neither possible to interview nor to include two states (i.e., Alabama and New Jersey).

Validity and Reliability

The validation of the data collected occurred in two ways. First, the descriptions of the secondary CTE standards systems were compared to the most

¹ In some states, CTE is not a part of the K-12 state DOE: it is either located in a separate agency dedicated to CTE, housed in a postsecondary education agency, or part of the state workforce development agency. However, for simplicity, the relevant agency is referred to as the DOE.

recent literature for consistency (Klein & Charner, 2005; MPR Associates, Inc. & Academy for Educational Development, 2005). Most of the information that was gathered, however, was more recent than this literature. Accordingly, a random subset of states was assigned to more than one researcher and outcomes were compared (Mechur Karp, Bailey, Hughes, & Fermin, 2005). Only minor inconsistencies were found and it was concluded that the collected information was valid.

The interviews with state officials served to validate and clarify the accuracy of the information found online. The officials provided detail and context on the actual implementation of the standards system, providing a different type of validity. In addition to this validation, a random subset of nine (18%) state summaries were sent to the interviewees as a check on accuracy. While some state representatives made minor changes to the summaries, it was determined that the summaries had not been incorrect, although some were incomplete or perhaps unclearly worded. One example of the kind of change that a state contact made involved the state technical endorsement that students may earn in New York state. The state contact noted that in addition to passing three parts of a technical endorsement assessment (i.e., written examination, project, and demonstration of technical skills), students must also pass the five Regents exams in academic areas in order to earn the New York technical endorsement.

Reliability was addressed in the beginning phases of the analysis. During data collection, each of the three study team members was assigned approximately one-third of the states. During data analysis, each member was responsible for one-third of the questions. In this way, each of the team members examined certain details for all states. Inconsistencies sometimes led team members to the source of the information (either the Web site or the state contact). This process served as a reliability check.

Data Analysis

By the end of the data collection period, 49 of the 51 states (including the District of Columbia) had been completed. The 49 states were categorized into three groups: A, B, and C. Group A (30 states) had completed or nearly-completed statewide standards systems. Group B (11 states) consisted of states in the process of developing their statewide standards systems or with incomplete, unmaintained, or alternate statewide standards systems (i.e., competency lists). The cutoff for assigning a state to Group A or B was the breadth of information available. If there were few answers to the interview questions, the system was not sufficiently developed to be in Group A. States in Group C (8 states) did not have statewide standards systems; however, these states were not devoid of CTE standards. In some cases, the state mandated that local agencies develop local CTE standards and in other cases, local agencies did so voluntarily. If a state had many sets of locally-

developed standards, information was not gathered on all of them. The analysis was restricted to statewide standards systems.

In order to analyze the data, notes from each state's Web search and interview were synthesized into state summaries. Excel spreadsheets were created for each question. The states were listed along with their responses to the question. These responses were then standardized as much as possible across states without changing any answers. The first question provided descriptive information on the existence and status of the state standards systems, and, once copied onto the spreadsheets for the remainder of the questions, it became a major sorting tool. The spreadsheets for the remaining questions were first sorted by state group (i.e., A, B, or C), and then summarized into tables.

Findings

The information reported is like a snapshot from a specific period in time. Some of the details could be out of date, particularly for states that were in the process of developing their standards systems during the study. The passage of Perkins IV during the period of this research accentuated the transitory nature of the findings, because states were in flux both anticipating and then responding to new mandates. However, the information remains useful for researchers and policymakers interested in understanding the current status of the states in developing CTE standards systems.

There was a great deal of variability in the types of standards systems developed or being developed across the 50 states and the District of Columbia. The states' responses to the queries are summarized in text and tabular form. More detail is provided on states that reported doing something different from most other states in that regard.

Description of Statewide Secondary CTE Standards System

Of the 48 states and the District of Columbia contacted, 30 reported that they had a statewide secondary CTE standards system (see [Table 1](#)). These states represent Group A. Eleven states were either in the process of developing or had partially developed such a system. These states comprised Group B. Group C consisted of 8 states that did not have a statewide CTE standards system, although they did have local CTE standards. All of the findings are presented in terms of these three groupings.

Group A: States with a statewide standards system. Thirty states reported having a statewide secondary CTE standards system in place. Of course, these systems look quite different from one another. For instance, some of these states have had CTE standards (or some previous version) for decades (e.g., Florida, Ohio, Virginia, West Virginia), while others began to develop them in the 1980s or 1990s,

or more recently (e.g., Kansas, Missouri, Utah). In some states, the CTE standards are part of a comprehensive accountability system including academic and employability standards (e.g., Kentucky, Massachusetts, Ohio).

Table 1
State Groupings With Respect to Statewide Secondary CTE Standards Systems

<i>Group A states^a</i> <i>n = 30</i>	<i>Group A states^a</i> <i>(continued)</i>	<i>Group B states^b</i> <i>n = 11</i>	<i>Group C states^c</i> <i>n = 8</i>
Arizona	New Hampshire	Georgia	Alaska
Arkansas	New York	Hawaii	Colorado
California	North Carolina	Idaho	District of Columbia
Connecticut	Ohio	Illinois	Maryland
Delaware	Oklahoma	Maine	Michigan
Florida	Oregon	Nevada	Minnesota
Indiana	South Carolina	New Mexico	Montana
Iowa	Tennessee	North Dakota	Pennsylvania
Kansas	Texas	Rhode Island	
Kentucky	Utah	South Dakota	
Louisiana	Virginia	Vermont	
Massachusetts	Washington		
Mississippi	West Virginia		
Missouri	Wisconsin		
Nebraska	Wyoming		

Note. The sample consisted of the 49 states (including the District of Columbia) that responded to the telephone interview.

^aGroup A states have complete or nearly complete statewide standards systems. ^bGroup B states are in the process of developing a statewide standards system or have an unmaintained system.

^cGroup C states have either mandated that local agencies develop standards or local agencies have done so voluntarily.

Group B: States with an incomplete statewide standards system. Table 1 lists the 11 states in Group B, which were either in the process of developing a statewide CTE standards system or had an alternate statewide system. For instance, Georgia and Hawaii were revamping their CTE programs to align with academic standards revisions and were approximately one-third completed at the time of the data collection. Maine planned to implement national standards; however, there were various sets of national standards available for many program areas, and local agencies were free to choose from among these standards. North Dakota had anticipated completion dates for its remaining program areas posted online. New Mexico had created some CTE standards and forwarded them to educators for comment. In Nevada, standards development is an ongoing process. They had developed a system of standards at the program area level, but found that this did not

provide sufficient guidance. The goal became to develop standards for every CTE course. Rhode Island appeared to be the least far along among the states in Group B, reporting that they were at “the very early stages” of creating a CTE program approval process that would have standards embedded within it. South Dakota was in the process of creating or updating all of its CTE standards, making the exact status of the system difficult to discern.

Idaho did not have a legally-adopted standards system for CTE. Idaho had program standards that specified a curriculum for many course sequences, and those included competency profiles and task lists. However, according to the state director, these competency lists were not referred to as standards. Furthermore, the competencies either were not complete, not thorough, outdated, or otherwise not used in some program areas.

Illinois had created an Occupational Skills Standards Credentialing Council in the late 1990s, and it developed standards for several CTE program areas. However, political issues and government downsizing resulted in the Council being discontinued in 2005. The skill standards it created are still available, but there is no further movement at the state level to continue developing additional statewide CTE standards.

Vermont is similar to Idaho in that it had competency lists that were old, not used consistently, and not maintained. The state was beginning to convert from competencies to standards, with the hope that by moving to broader standards, there would be less need for updating than with the more specific, detailed competencies. The state planned to focus on higher-order skills and leave many of the details to local curriculum.

Group C: States with a local as opposed to statewide standards system.

The states in Group C had locally developed CTE standards but did not have a statewide system. For instance, Michigan, Minnesota, and Pennsylvania had mandated that local agencies develop or adopt CTE standards.

Both Alaska and Maryland have some state-developed standards, but local districts can create or select others. In Alaska, there has not been any legislative authority to develop statewide standards. Maryland required that local agencies include standards in their CTE programs, but the state did not mandate which standards. In addition, Maryland developed its own model CTE programs that are standards-based. When local agencies implement these model programs, known as “Fast Track” programs, they are automatically approved.

The states of Colorado and Montana did not have statewide systems of CTE standards. Local agencies have developed standards on their own in some cases. The only statewide system in Montana is a set of workplace standards, but these are generic to all CTE program areas. Colorado is currently beginning the process of developing a statewide system, but many districts have developed their own local

standards. Finally, the District of Columbia eliminated its vocational education system in the 1990s and a new system has not been developed to replace it.

States with Ongoing Categorical State Funding for CTE

All states receive federal Perkins funding supporting CTE. However, it funds only approximately 5% of most states' secondary CTE expenditures. Most CTE funding comes from state sources. Some states allocate funding to secondary CTE through what is called categorical (i.e., specifically targeted) funding, while other states provide more general K-12 education funding to local education agencies which then distribute the funds among many local programs including CTE. As noted by Klein (2001), determining whether a state CTE funding source is ongoing or not can be difficult because states also provide grants or supplements for CTE activities, thus providing targeted but inconsistent funds. The contacts assisted in the classification of each state with respect to state CTE funding.

Of the 30 states in Group A, 22 reported that they provided ongoing categorical state funding for secondary CTE programs (see Table 2). No information was collected about the amount of state funding provided, but several state officials attributed the development of the CTE standards system to a steady source of funding. However, it must be noted (see Table 2) that 9 of the 11 states in Group B also received ongoing categorical state funding, yet they have not fully developed a CTE standards system. This finding suggests that ongoing categorical state funding can assist a state to develop its CTE standards system, but it is not a sufficient condition. Clearly, standards development and a statewide system for its implementation requires investments of time and money.

Alignment of the Secondary CTE Standards System with Postsecondary Technical Standards

The extent of alignment between a state's CTE standards system and postsecondary education and training programs was also examined. Twelve of the 30 states in Group A reported that they had a statewide postsecondary technical standards system in addition to their secondary standards system (see Table 3). Of these 12 states, 10 had aligned the two systems. Kentucky and Nebraska both indicated that they were working towards this goal. Two other states, Delaware and Utah, reported that they had aligned secondary CTE standards in some program areas with relevant baccalaureate programs as well. Finally, two states (Florida and Ohio) had no distinction between secondary and postsecondary standards, they are simply all CTE standards.

Table 2
States with Ongoing Categorical State Funding for CTE

Group A states ^a n = 22 of 30	Group A states ^a (continued)	Group B states ^b n = 9 of 11	Group C states ^c n = 5 of 8
Arizona	Ohio	Georgia	Alaska
Connecticut	Oklahoma	Hawaii	Colorado
Florida	South Carolina	Idaho	Michigan
Indiana	Tennessee	Illinois	Montana
Iowa	Texas	Maine	Pennsylvania
Kansas	Utah	North Dakota	
Louisiana	Virginia	Rhode Island	
Massachusetts	Washington	South Dakota	
Mississippi	West Virginia	Vermont	
Missouri	Wisconsin		
North Carolina	Wyoming		

Note. The sample consisted of the 49 states (including the District of Columbia) that responded to the telephone interview.

^aGroup A states have complete or nearly complete statewide standards systems. ^bGroup B states are in the process of developing a statewide standards system or have an unmaintained system. ^cGroup C states have either mandated that local agencies develop standards or local agencies have done so voluntarily.

Table 3
Group A States with Postsecondary CTE Standards and Their Alignment to Secondary CTE Standards

States that have a statewide postsecondary technical standards system n = 12 of 30	States that have aligned secondary and postsecondary standards n = 10 of 12
Arkansas	Arkansas
Delaware	Delaware
Florida	Florida
Kentucky	--
Louisiana	Louisiana
Mississippi	Mississippi
Nebraska	--
North Carolina	North Carolina
Ohio	Ohio
Oklahoma	Oklahoma
Texas	Texas
Utah	Utah

Note. The sample consisted of the 30 states in Group A, that is, those states that have complete or nearly complete statewide standards systems.

Alignment of Secondary Academic Standards with CTE Programs

The integration of specific state academic standards into CTE courses and coursework is called crosswalking. States identify the academic skills addressed in each CTE program area, then these skills become an explicit part of the curriculum. Therefore, the purpose of crosswalking is to demonstrate the academic foundations of CTE. While some might argue that the time expended on academic skills takes away from the time needed to master the skills of the CTE program area, most CTE program areas do incorporate important foundational academic skills. In the current climate of strong accountability for academic achievement, high school program areas that contribute to academic achievement may be more highly valued than others.

An example of crosswalking would be welding students in Louisiana who were learning and following safety and inspection procedures from manuals and other texts. While learning in a CTE context, these students were also meeting academic standards, such as the following English Language Arts standard: “Interpreting complex texts with supportive explanations to generate connections to real-life situations and other texts” (Louisiana Department of Education, n.d., p. 67).

Eighteen of the 30 states in Group A and 4 of the 11 states in Group B had crosswalked their academic standards to their CTE courses. Interestingly, some states that had not even completed their CTE standards development had already crosswalked academic standards to CTE courses. Table 4 shows which states had crosswalked their academic standards to their CTE programs.

Table 4
States That Have Crosswalked Their Secondary Academic Standards to Their CTE Programs

Group A states ^a <i>n</i> = 18 of 30	Group A states ^a <i>(continued)</i>	Group B states ^b <i>n</i> = 4 of 11
Arkansas	Nebraska	Georgia
Arizona	New Hampshire	Nevada
California	New York	North Dakota
Delaware	North Carolina	Vermont
Kansas	Ohio	
Kentucky	Texas	
Louisiana	Virginia	
Mississippi	Washington	
Missouri	Wisconsin	

Note. The sample consisted of the 41 states (including the District of Columbia) in Groups A and B.
^aGroup A states have complete or nearly complete statewide standards systems. ^bGroup B states are in the process of developing a statewide standards system or have an unmaintained system.

Ensuring that the CTE Standards are Reflected in Practice

Part of the policy framework for standards-based education is the need for student assessment. The contacts were asked how the states ensured that the standards were reflected in practice. The officials could have more than one response. The most common response ($n = 19$) was that assessment was or was intended to be the primary means by which states would ensure that the standards indeed guided local practice (see Table 5).

Table 5
States Using Assessment or Professional Development to Ensure Standards are Used in Practice

Assessment ensures standards implementation ($n = 19$ states)		
Group A states ^a	Group B states ^b	Group C states ^c
$n = 12$ of 30	$n = 4$ of 11	$n = 3$ of 8
Connecticut	Hawaii	District of Columbia
Florida	Maine	Maryland
Kentucky	Rhode Island	Pennsylvania
Louisiana	Vermont	
Massachusetts		
Mississippi		
North Carolina		
New York		
Ohio		
Oklahoma		
Utah		
West Virginia		
Professional development ensures standards implementation ($n = 12$ states)		
Group A states ^a	Group B states ^b	Group C states ^c
$n = 7$ of 30	$n = 1$ of 11	$n = 4$ of 8
California	Nevada	Colorado
Connecticut		Maryland
Massachusetts		Minnesota
Missouri		Montana
Nebraska		
South Carolina		
Wisconsin		

Note. The sample consisted of the 49 states (including the District of Columbia) that responded to the telephone interviews. States could report more than one process.

^aGroup A states have complete or nearly complete statewide standards systems. ^bGroup B states are in the process of developing a statewide standards system or have an unmaintained system. ^cGroup C states have either mandated that local agencies develop standards or local agencies have done so voluntarily.

Of those 19 states, 10 states were using assessments at the time of the data collection (Connecticut, Kentucky, Louisiana, Massachusetts, Mississippi, New York, North Carolina, Ohio, Utah, West Virginia). These assessments varied widely, from end-of-program assessments (Kentucky) to end-of-course assessments (Utah), from online assessments (West Virginia) to hands-on demonstrations (New York), and from state-developed exams (Utah) to state-specific vendor-developed exams (Connecticut). The remainder of the 19 states (District of Columbia, Florida, Hawaii, Maine, Maryland, Oklahoma, Pennsylvania, Rhode Island, Vermont) planned to include assessment as part of their standards system but had not done so at the time of the interviews.

Professional development was, along with site visits, the next most frequently mentioned means of ensuring that the standards were implemented in practice. The theoretical and policy framework for this study suggested that standards-based reform required connecting teacher preparation to student standards. In 12 states, professional development was the primary or only means of ensuring implementation of CTE standards (see [Table 5](#)). Connecticut, Maryland, and Massachusetts reported that both assessment and professional development were used to implement their CTE standards policy.

Synthesis of Findings

This examination of the development of state CTE standards systems in ways consistent with Perkins IV included variables such as state funding, alignment with other standards systems in the state, and whether the state uses assessments to ensure standards implementation. These categories are found in [Table 6](#).

The analysis began with the 30 states in Group A, which consists of the states with completed or nearly completed statewide standards systems. Of those, 22 provided ongoing categorical state funding for CTE, which probably helped these states accomplish the massive task of developing the CTE standards system. Similarly, it is certain to assist these states to implement Perkins IV mandates. Fewer states ($n = 18$) had crosswalked their academic standards to their CTE programs, although these states represented more than one-half of the Group A states. Crosswalking is important because Perkins IV requires reporting of academic achievement using the state's NCLB assessment. If states outline which academic standards are addressed in CTE courses and programs, teachers are more likely to incorporate those standards and students are more likely to work on those standards and satisfy them.

Only 10 of the 30 states in Group A had aligned their CTE standards with postsecondary technical standards. As noted earlier, in two states (Florida, Ohio), there was only one set of CTE standards that covers both secondary and postsecondary education. But the most common situation was that the postsecondary systems had not yet developed statewide technical standards. Several state secondary

Table 6
Summary of States with Complete or Nearly Complete Statewide Standards Systems

Group A states	Ongoing categorical state funding provided <i>n</i> = 22 of 30	Academic standards crosswalked to CTE <i>n</i> = 18 of 30	Standards aligned with postsecondary technical standards <i>n</i> = 10 of 30	Assessment ensures implementation of standards <i>n</i> = 11 of 30
Arizona	X	X		
Arkansas		X	X	
California		X		
Connecticut	X			X
Delaware		X	X	
Florida	X		X	
Indiana	X			
Iowa	X			
Kansas	X	X		
Kentucky		X		X
Louisiana	X	X	X	X
Massachusetts	X			X
Mississippi	X	X	X	X
Missouri	X	X		
Nebraska		X		
New Hampshire		X		
New York		X		X
North Carolina	X	X	X	X
Ohio	X	X	X	X
Oklahoma	X		X	X
Oregon				
South Carolina	X			
Tennessee	X			
Texas	X	X	X	
Utah	X		X	X
Virginia	X	X		
Washington	X	X		
West Virginia	X			X
Wisconsin	X	X		
Wyoming	X			

Note. The sample consisted of the 30 states in Group A, that is, those states that have complete or nearly complete statewide standards systems.

officials noted this, saying that the community and technical colleges in their states were “very resistant to standards,” or they had “just recently discovered CTE standards” or had “not taken as strict a stance” on standards, or were simply “not as

standards-driven” as secondary education. Such attitudes among some postsecondary boards or institutions can be a hindrance to one of the goals of Perkins IV: the linking of secondary and postsecondary CTE into a seamless system.

The 10 states that reported alignment across secondary and postsecondary standards are making progress towards providing seamless, standards-based CTE from secondary to postsecondary education. Other states reported “hundreds” of articulation agreements spanning secondary and postsecondary education; however, sometimes a state lacked an overarching organization for community or technical colleges, making statewide postsecondary standards development challenging.

Eleven Group A states reported that they used assessment as the means of ensuring that CTE standards were being implemented. This allowed these states to objectively monitor student achievement of CTE standards. These 11 states have an advantage over other states with respect to Perkins IV mandates, particularly regarding its requirement that states use valid and reliable measures to assess the technical skill achievement of their CTE students. Perkins IV states that core indicators of performance must, among other things, measure “student achievement on technical assessments that are aligned with industry-recognized standards, if available and appropriate” (Perkins IV, §113).

As indicated in [Table 6](#), four states (Louisiana, Mississippi, North Carolina, and Ohio) appeared to be the most advanced in their development of a CTE standards system with respect to the variables presented. These states appear in every column of the table, representing important variables in light of the Perkins IV legislation. Three other states came close to being in every column, but missed by one: Texas does not require CTE student assessments, and Oklahoma and Utah have not crosswalked their academic standards to CTE. The set of state CTE standards systems remains a work in progress. However, most states are in Group A. This synthesis has shown that many if not most of the states could be said to be progressing towards goals that align well with the federal vision in Perkins IV.

Conclusions and Discussion

The data and information in this study may be useful to both federal and state government officials interested in improving CTE by implementing standards-based reform. The results of this study can certainly inform future federal evaluation activities, provide states with information about other states’ efforts and strategies, and more fully describe the CTE standards landscape for researchers in the CTE field and beyond.

This study has established a baseline of information about state progress in developing CTE standards. It has presented several areas that pose challenges while moving forward into the Perkins IV era. However, CTE has already made a unique contribution to education by bringing industry input into secondary coursework

through CTE standards.² This is the end result of the activity that began after the publication of the commission reports cited previously, which decried the disconnect between school and the larger economy. A national set of structures has been developed to bring the education and industry sectors into greater alignment, and this could not have occurred in academic subjects or any other part of the high school curriculum except CTE. Industry has always assumed an advisory role for CTE programs. Currently, however, standards and accountability, the language of academic subjects and NCLB, have been brought to bear on CTE. While it may seem obvious that industry would align more easily with CTE than with traditional academic subjects, this tends to get lost in discussions of the relative importance of various curricular areas present in high schools. At a time when high school program areas are being examined for their contribution to secondary education, CTE provides unique and important added value to the high school experience. The challenge now, with the development of standards systems and the passage of Perkins IV, is to move towards greater accountability and comparability in CTE without adding so many mandates that CTE can no longer provide that added value.

The results from this study provide a snapshot regarding the status of each state's secondary CTE standards system. There was a great deal of variation in the types of standards systems developed or being developed across the 50 states and the District of Columbia. This variation appears to be driven by each state's unique philosophies, policies, and practices.

Most states (30 of 51) have developed a statewide CTE standards system. The others were either in the process of developing statewide standards or have a locally developed standards system. Louisiana, Mississippi, North Carolina, and Ohio were at the forefront with respect to ongoing categorical state CTE funding, academic and postsecondary technical standards integrated with secondary CTE standards, and the use of CTE technical assessment measures, followed by Oklahoma, Texas, and Utah.

In other states, some of the dimensions that were examined are likely to present challenges in their ability to satisfy the requirements of Perkins IV. For instance, in many states, secondary and postsecondary education agencies have historically operated with surprisingly little communication with each other. Few states had crosswalked their academic standards to CTE programs. Similarly, only a small number of states use technical skill assessments to measure student technical proficiency gained from CTE course taking. Presumably the number of states responding to these mandates will increase, but incentives might be needed to motivate states to move away from approaches undertaken before the details of Perkins IV were revealed.

² Thank you to Neil Knobloch for this insight.

Policy Recommendations and Directions for Future Research

The variation in CTE standards systems across the country thwarts cross-state comparisons. There are advantages to standardizing the CTE standards (and assessments to the extent feasible) across states. For example, students moving across state lines would encounter similar expectations in CTE programs. Additionally, Perkins monitoring would become much easier. Further, differences in outcomes across states could more easily be measured because there would be some comparability. However, the reality is that the states have invested time and money in developing their systems and may be resistant to revisiting and changing their CTE standards systems merely to standardize them across states. Some states that were in the process of developing their standards systems reported that they were modeling their standards after other state systems. Still other states have created new systems to respond to their specific needs, contributing to the variation.

It is unlikely that the federal government could “standardize the standards” across states to have comparable accountability systems. Perkins funding provides only a small amount of the total support for CTE compared to what most states and localities expend, so there is currently little incentive to change state practices that required great effort to develop. The best course of federal action may be to monitor and help states collect valid and reliable data during the early years of Perkins IV, examine those data, and then determine the next steps. Just as some states are finding to be the case in academic subjects, voluntarily aligning secondary academic education across states has benefits ([Achieve, 2008](#)). Perhaps states will recognize that similar benefits may accrue if they align CTE standards more closely across states as well. In short, many challenges remain to creating a more national system of secondary CTE accountability.

There are many avenues for future research. For example, to increase understanding of how standards-based CTE reform is being developed in the states, it would be useful to investigate the other policy elements of reform such as curriculum frameworks, professional development around the curriculum and standards, and student assessments. Although there has been little systematic work on these topics, the passage of Perkins IV should drive both practice and research in these areas.

The data presented in this study could be further analyzed to discover more about the current state of CTE standards in the U.S. Research could continue to follow the development of the systems, because so many are still under development. As states begin to complete their CTE standards systems, a more stable baseline of information should become available.

There are fruitful avenues for research on the topic of CTE funding and its relationship to developing secondary CTE standards in accordance with Perkins IV. As noted, the states varied as to whether they provided ongoing categorical state funding for CTE. Future research could monitor states that direct fewer resources to secondary CTE. Such work could determine whether continued inadequate funding

impedes success in these states. Such work could also identify states that appear to satisfy Perkins IV mandates with less funding compared to other states, and learn lessons from them that can help all states.

In states where the standards systems are completed and being implemented, studies could be designed to determine if the standards are having an effect on student learning. This study has laid the groundwork to allow other researchers to identify states that have completed standards systems and that could participate in such a study of student outcomes. Teacher professional development, attitudes, and practices could be examined in such a study as well.

Finally, now that the standards systems have been documented, relationships can be explored and promising practices can be identified. Perhaps states in which secondary and postsecondary CTE standards and programs are aligned have more students continuing to postsecondary education than states without such alignment. All states could benefit from further research into promising practices with respect to the myriad of issues in CTE standards development.

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Notes

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