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### **The Future of Career Technical Education (CTE) Assessment Executive Summary**

#### COUNCIL OF CHIEF STATE SCHOOL OFFICERS

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# The Future of Career Technical Education (CTE) Assessment

## Executive Summary

### PURPOSE OF THIS WHITE PAPER

On behalf of the states that participated in the 2009–10 State Collaborative on Assessment and Student Standards (SCASS) on Technical Skills Assessment, this paper addresses two significant issues facing our nation: ensuring that more students are both college and career ready and addressing the need for better and more quality data to evaluate the effectiveness of career technical education (CTE) programs. Global competition, declining student achievement, and the skills gap bring a sense of urgency to address these issues. We believe a major focus and investment in building large-scale CTE assessments that result in nationally portable credentials is an important part of the solution. We also believe that we need better accountability data to evaluate the effectiveness of CTE and to compete better internationally. The use of multiple measures is preferred when we need both to evaluate the effectiveness of programs and student achievement. This white paper is a call to action for states, the federal government, and testing companies.

### RECOMMENDATIONS

- 1. Develop a national common core of technical standards that builds on the National Career Cluster Knowledge and Skills statements.** A national approach to CTE assessment requires common standards, and they must define more than general workplace readiness skills. The Career Cluster Knowledge and Skills define the rigorous, transferrable skills needed across *all* occupations in each of the 16 industry career clusters and 79 subsequent career pathways. There is also a role for occupation-specific standards common to many CTE programs, but we believe these are best left to states and industry groups to steward.
- 2. Create a national comprehensive college and career ready assessment system that measures both academic and technical knowledge and skills.** All components of a CTE assessment approach, regardless of the format, should include multiple measures for student achievement and program performance. Components of the CTE approach should, where possible, integrate with states' broader assessment systems to measure academic achievement and manage student data. Rigorous programs of study aligned to the National Career Clusters framework should be the method of delivery for all CTE curriculum and assessment.
- 3. Build high-quality technical assessments that examine proficiencies as defined by the academic and technical common cores and that may lead to industry-recognized, nationally portable credentials.** We believe that a shared item bank could facilitate the development and delivery of large-scale state assessments that address many areas of the national common core. Performance and portfolio assessment may be required for some skill areas, but a collaboratively developed and managed shared item bank provided with protocols for valid and reliable test form development and delivery provides the best opportunity to pursue nationally portable credentials as advanced placement, transcribed credit, and industry-recognized certification.
- 4. Create a national clearinghouse of current industry-based assessments and related credentials/certifications.** There will continue to be a need for assessments other than those generated from the shared item bank, such as assessments for industry certification, state licensure, occupation-specific skills, and performance assessments for skill areas unsuitable for multiple-choice testing. A national clearinghouse of these assessments will serve CTE and education leaders seeking to identify all additional tools to form a complete assessment approach.

## NEXT STEPS

The Council of Chief State School Officers has long sponsored a program of State Collaboratives on Assessment and Student Standards (SCASS). Beginning in 2009–10, the Career Technical Assessment Collaborative (CTAC), a SCASS on Career Technical Assessment, was founded and authored this white paper. The steps enumerated below are those that CTAC is fostering during the 2010–11 year.

- Identify opportunities to collaborate with consortia developing assessment systems and approaches.
- Collaborate with testing companies to explore the possibilities of win-win relationships to advance student achievement assessment in CTE for both college and career readiness.
- Seek input from chief state school officers and assessment directors.
- Create coalition of states to begin planning development of published instruments for use in CTE as well as possibilities for developing an item bank and a clearinghouse.
- Communicate strategy and plan to broader education community.

# The Future of Career Technical Education (CTE) Assessment

## A white paper of the CTAC SCASS, CCSO

### Purpose Statement

The forecasted needs of the 21<sup>st</sup> century, the pace of technological change, changing demographics, the challenges of student engagement and achievement, and growing global competition have all created an urgency to evaluate the trajectory and role of career technical education (CTE) in the United States. In March 2010, the National Association of State Directors of Career Technical Education Consortium (NASDCTEc ) put forth a bold, progressive vision intended to guide CTE's role in our nation's educational, workforce, and economic advancement and success—Reflect, Transform, Lead: A Vision for the Future of Career Technical Education.

This vision paper was instigated largely by three current realities of the shrinking globe:

- 1) **Declining student achievement in the United States:** We now face more and steeper economic competition than ever before. And our global competitors have not only increased their nations' educational achievement but have surpassed that of the United States in the number of students graduating from high school and college.
- 2) **Technology:** The opportunities and hazards brought on by technology have contributed to the shrinking of the globe and significantly influence how, when, and where learning and work can occur.
- 3) **Demographics:** The changing demographics in the United States pose a stark reality—we are about to experience one of the greatest redistributions of the working age population in modern history as Baby Boomers retire en masse with a smaller pool of well-qualified replacements from which to meet our workforce needs.

These realities define a climate for which our current education and workforce preparation system is ill-equipped to succeed. We must take a hard look at how our workforce is prepared if the United States is to retain its position in the dynamic global economy.

**What does this mean for CTE?** Transformation. The false dichotomy of preparation for work or college is no longer appropriate. The global economy places a premium on skills acquisition; therefore, all workers must be lifelong learners who cultivate their knowledge and skills through further education in order to adapt to and excel in the workforce. All CTE programs must be delivered through comprehensive programs of study. A program of study should prepare students to be successful by incorporating rigorous academic and technical standards, as well as critical workplace skills such as problem-solving, communication, and teamwork, to ensure career and college success for its students. Programs of study should be aligned to the National Career Clusters Framework. This framework emerged in the late 1990s as a way to

define the knowledge and skills needed across all industries and careers. The framework identified 79 career pathways within 16 career clusters—broadly defined industries. All occupations can be represented in this framework. The goal of the framework is to ensure acquisition of knowledge and skills that transfer throughout a pathway and a cluster and prepare a student for college and career readiness.

In support of the broader vision of CTE to reflect, transform, and lead, this paper strongly recommends the following goals and identifies a supporting vision for their implementation:

- 1. Develop a national common core of technical standards that builds on the National Career Cluster Knowledge and Skills statements.**
- 2. Create a national comprehensive college and career ready assessment system that measures both academic and technical knowledge and skills.**
- 3. Build high-quality technical assessments that examine proficiencies as defined by the academic and technical common cores and that may lead to industry-recognized, nationally portable credentials.**
- 4. Create a national clearinghouse of current industry-based assessments and related credentials/certifications.**

We must be willing to take the bold steps necessary to jumpstart dramatic change in our nation's education and workforce preparation systems. The silos of academics versus CTE should be eliminated and their supporting infrastructures must be reimagined to meet the needs of the economy. Success in this global economic environment demands a different type of workforce, and this workforce also demands a different kind of educational delivery system. We must look at what we deliver in our programs and how we deliver the programs, and we must let go of what no longer works. To effectuate these changes we need to examine what we teach (as associated with academic and technical standards), how we teach it (curriculum and instruction), and how we assess the success of our programs and students (comprehensive, nationally recognized assessments). This vision for a change in education is the focus of this paper.

A number of general principles will guide the achievement of the four visionary goals of this white paper. These principles include the following:

- a) Use the National Career Clusters Framework as the framework for developing national standards and assessments.
- b) Utilize the assessments, outcomes, and other resources permitting states to meet the federal expectations for measuring academic and technical skill attainment under Perkins IV legislation.

- c) Develop assessments and delivery mechanisms for these assessments that consider and support the multiple existing CTE delivery systems, and those yet to be developed, around the country.
- d) Integrate and coordinate with the State Longitudinal Data Systems (SLDS) to promote data management and provide support.
- e) Partner and collaborate with a multitude of stakeholders for short-term success and long-term sustainability.

***Goal 1. Develop a national common core of technical standards building on the National Career Cluster Knowledge and Skills statements***

It is no longer efficient or sufficient to have each state build its own standards. As the workforce is mobile and the marketplace is global, common standards across states are essential. We believe that we should build on existing work done around career clusters to establish a national common core of technical standards. To enact such changes, a number of givens are inherent. These include the following:

- The organizing framework for the standards should be the National Career Clusters framework. This framework includes 16 career clusters (industry-based groups of occupations) and organizes standards into four categories:
  - Essential Knowledge and Skills: These are the college and career readiness standards that every individual needs to make a successful transition into postsecondary education and/or entry-level employment. These standards are common and shared by all 16 career clusters but can be delivered within the context of any of the 16 career clusters.
  - Career Cluster Standards: These are broad-based academic and technical standards that are shared by all occupations in a career cluster.
  - Career Pathway Standards: These are broad-based academic and technical standards that are shared by all occupations in the career pathway.
  - Career Specialty Competencies: The next step in this progression is occupation-specific competencies. The National Career Clusters framework recognizes this level but does not define this level of knowledge and skills.
- The standards must demonstrate learning progressions and be competency based, rather than structured by grade level.
- The standards must incorporate and should be aligned to the relevant national academic common core standards.

Our vision occurs in a context of strong national and statewide governmental support.

*“I am calling on our nation’s governors and state education chiefs to develop standards and assessments that don’t simply measure whether students can fill in a bubble on a*

*test, but whether they possess 21<sup>st</sup>-century skills like problem solving and critical thinking, entrepreneurship and creativity.”*

- President Barack Obama, March 10, 2009

We rise to the President’s challenge and propose a collaborative partnership between the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), the authors of the common core academic standards (the Council of Chief State School Officers, the National Governors Association, and Achieve), as well as relevant national industry education advisory committees to partner together to enhance the nationally validated Career Cluster Knowledge and Skills Statements © 2009 to become a national common core of technical standards that will prepare an innovative, creative 21<sup>st</sup>-century skilled workforce.

***Goal 2. Create a national comprehensive college and career ready assessment system that measures both academic and technical knowledge and skills***

*“Improved assessments can be used to accurately measure student growth; to better measure how states, districts, schools, principals, and teachers are educating students; to help teachers adjust and focus their teaching; and to provide better information to students and their families.”*

- U.S. Department of Education, Office of Planning, Evaluation and Policy Development, *ESEA Blueprint for Reform*, Washington, D.C., 2010.

**Core with options**

Our priorities for what a new assessment system should accomplish are based on the concern for valid assessment of the rigorous academic and technical skills that are benchmarked internationally and supported by leaders from business, labor, education, and government. Assessments must be standards based and managed as an integrated system of curriculum and instruction. This assessment system must allow multiple measures for improvements in instruction and learning that employ the learner to be engaged and responsible for his/her learning. Actual student performance on challenging, authentic tasks that evaluate college and career ready standards must be included.

Having a system means there are several components, each playing a complementary, not duplicative, role. This comprehensive system would promote the acquisition of college and career ready standards aligned to the National Career Cluster Essential Knowledge and Skills Statements for all students. The system would support the development of valid, reliable, and rigorous national technical assessments, aligned to a national common core of technical standards, resulting in recognized and portable credentials.

To achieve these priorities, ongoing transformation in the content, delivery, and instruction of CTE is necessary. Programs of study aligned to the National Career Clusters Framework are the means to accomplish this goal and should be the method of delivery of all CTE. A rigorous and comprehensive program of study, delivered by qualified instructors, is a structured sequence of academic and CTE coursework that leads to a postsecondary-level credential. In a program of study, the standards, curriculum, and assessments are aligned, thereby ensuring coordination and seamless delivery of instruction and transitions for students. Relevant work-based learning opportunities, and leadership development offered through career technical student organizations (CTSO), are incorporated into the program of study. General design of the CTE assessments should be consistent with an integrated system in which summative and formative components are examined in multiple measures of performance.

As we aspire to have CTE be performance-based, student-centered programs that are delivered without regard to time or place to the extent feasible, without diminishing the quality of the programs, we must build and manage an assessment system that includes both on-demand and curriculum-embedded assessments that evaluate a full range of standards and allow evaluation of student progress. To document competency of these knowledge and skills, a hybrid model using technology could combine elements of multiple measures such as performance-based tasks, critical thinking and inquiry-based skills, analytic selected-response items, and short and extended constructed-response items. This integrated approach to assessments that evaluate authentic student work and college and career readiness skills will support more transferable learning and teaching and provide more information to teachers and students.

It is critical that such an assessment system be constructed from the perspective of the entire education system (nationally with K–12 as well as higher education), rather than simply adding another set of tests into systems that are already divided and isolated by prior efforts. Many CTE programs that exist today were never designed to serve as a component of an integrated system. Changes at the program and system levels will be needed to make sure that all programs fit in a seamless manner.

### **Shared Item Bank**

We are proposing the creation of a shared item bank (SIB) for the assessment of the National Career Cluster Knowledge and Skills Statements for operational assessments that has common format and structure to store and enable interoperability and transportability of items in order to reduce item development costs.

Current federal law requires all states have an approved assessment system for grades 3–8 and reading/language and mathematics for high school and science for elementary, middle, and high school. This SIB could assist in the continuation of federally required state assessments and/or the development of new assessments as determined by individual states. Additionally, the SIB has the potential to be the foundation for the development of an interim/formative and/or computer adaptive assessment as the number of items increases and states move

toward a more comprehensive assessment system. The SIB will consider a three-pronged approach:

- 1. Operational SIB:** to be used solely by states for operational, secure, high-stakes assessments (highly secured items)
- 2. Interim/Formative SIB:** to be used by states and districts to develop assessments for formative program evaluation and to be secure but accessible to districts (moderately secured items)
- 3. Released SIB:** to be used by schools, districts, and states in conjunction with formative assessment to inform classroom instruction and share with the public

While all states presently have somewhat different academic standards and assess somewhat different content at different grades, the standards and the items developed to assess the standards are often very similar. With small amounts of work to align the items to the state-specific standards, states could increase their item pools substantially without a substantial increase in cost, as well as explore different item types. It is the goal of this project that the states will realize efficiency in assessment development while remaining in compliance with all federal and state laws.

Currently, many states rely on contractors to maintain a platform to inventory test items that are used to create the various state-administered assessments. Assessment items are the individual questions within each assessment, as well as the appropriate responses. States work independently with multiple educational professionals to create new items for use on their state assessments. Each assessment item has statistics linked to it that show which academic content standard and grade level the item measures to determine proficiency and how well students were able to understand and respond to that item from field tests and operational assessments. To achieve economy of scale, better domain sampling, adherence to nationally held standards, and compliance with the Career Clusters Framework and nationwide credentialing, a national item bank is needed. Such an effort, as described later in this document, would require the pooling of items from a great number of states. Formal, representative committees with membership from various groups and numerous content specializations review all items used on assessments to ensure fairness prior to, and following, each small-scale sampling and field test.

States could realize several outcomes in this partnership:

- enhanced assessment item pools
- reduced item development costs
- improved best practices in large-scale item development
- improved opportunity to conduct multistate field tests using common items aligned to each state's standards for the development of national norms
- increased innovation in item development, including items for those assessments other than high-stakes assessments

- improved collaboration among states to streamline assessment processes, increase effectiveness, and reduce costs
- shared committee reviews where items in the bank would be reviewed for content, alignment, and possible bias prior to donation (e.g., review committees could consider performance data, alignment, or additional bias after field testing as needed)
- standardized item banking to facilitate smoother transitions when change in assessment contractors occurs
- shared item statistics to inform and improve the technical quality of items
- universal design applied to items in the SIB
- other potential benefits if common core standards are implemented in the future

A protocol for the development of such an item bank has been developed by the Mid-Continent Comprehensive Center that includes an overview of the shared item bank, the memorandum of understanding (MOU), and a request for proposal (RFP). (*URL-coming soon*)

### **Professional development**

To implement an integrated system of assessment, curriculum, and instruction, time must be set aside for teacher professional development. It must be a priority that teachers receive the necessary training to incorporate performance-based instruction into their curriculum, and to use data from formative assessment as a basis for continuous improvement focused on student learning.

### ***Goal 3. Build high-quality technical assessments that examine proficiencies as defined by the academic and technical common cores and that may lead to industry-recognized, nationally portable credentials***

Industry-recognized credentialing along with cross-state portability of the credentials provides a potential value to students. Developing consistently high-quality technical assessments that examine the proficiency of students defined in the academic and technical common core creates a unique opportunity for achieving this goal. Achieving this visionary goal requires consideration of the potential use of the national item bank, consideration of multiple measures, utilizing computer delivery, and potentially allows for considering futuristic and visionary applications of the use of adaptive testing. We believe that multiple-choice testing has many benefits and will be the logical choice for most assessments in the system, but we recognize the system can be enhanced with performance assessments and portfolio evaluations for specific skill areas and for occupation-specific competencies.

### **Item Bank**

Members of CTAC have been in discussions with representatives of testing companies about constructing measures that CTE could use effectively. What such measures might look like is not yet clear. That is, they might be computer-based or paper-and-pencil measures. They might be distinct forms or item banks. Nevertheless, the notion of item banks in CTE has been considered for the past five years or so as an extremely attractive option. Our vision for such banks is described below.

### Use and Purposes

The CTE item bank (previously described by Derner, Klein, & Hilber, 2008) used to create unique state assessments may also have a significant role in delivering an academic and technical common core assessment. The item bank would store items addressing CTE indicators, and participating states could access test items from the bank to create their CTE assessments. The most appropriate set of indicators with which to align test items currently appears to be those identified by the National Career Clusters Knowledge and Skills ([www.careerclusters.org/resources/web/ks.php](http://www.careerclusters.org/resources/web/ks.php), Career Clusters).

The possible goals of the assessment are varied, but the design of any test or item bank must carefully take into account the intended purposes of the planned assessment system. Some goals that could be accomplished are attainment of knowledge and skills listed in the National Career Clusters Knowledge and Skill Statements, state-identified programs of study, and state-approved CTE programs or courses. By compiling test items, the reliability and validity of state CTE assessments would generally increase for participating states.

It is essential that construction and use of the item bank and resultant tests adhere to the *Standards for Educational and Psychological Testing*, published by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education (1999). Consistent with these standards, the item bank and each test must be developed for specific, clearly delineated purposes. Test validity requires that the use of the test is consistent with intended uses, and these considerations are essential to the design of the item bank and tests. If high-stakes decisions about individual test takers, such as course credit for postsecondary education or certification, are intended, a higher level of reliability would be required than if the stakes were lower for individuals. Item security is also a greater concern for high-stakes tests, further increasing the cost. Potential uses for the item bank would be measuring students' progress and learning, serving as a standard for course or program completion, providing faculty with curricular feedback, providing system leaders with evaluative data, assuring attainment of job skills, and providing information to postsecondary institutions for consideration in admissions decisions.

### Development and Operational Issues

In developing operational, secure, high-stakes assessments from the item bank, a balance of content areas and careful review of the coverage of content standards as well as consideration of statistical data will help ensure the validity and reliability of the resultant assessments. In

some cases where need is high, prepackaged forms could be made available for operational use at the state level. Otherwise, it is expected that states will have a process in place to populate valid test forms using best assessment practices.

Assessment item types fall into three general categories: multiple choice, gridded response, and constructed response. The multiple-choice items (selected response) have a prompt that may or may not be related to a passage and two or more answer options from which the test taker may choose. Gridded-response and constructed-response items (open-ended) also have a prompt that may or may not be related to a passage, but require the test taker to create his/her answer. Any passage and item may include graphics either in the stem of the item or in the options from which students select their response.

Multiple-choice items are highly recommended as the basis for the item bank. Multiple-choice items have the benefit of allowing for the sampling of a wide range of content, as is necessary in the current situation. Particularly if computerized testing is used, such multiple-choice items can include media such as images or video, though costs must also be considered in planning for the development of such items. Multiple-choice items may be objectively scored by computer. It is possible to populate the item bank with constructed-response items and scoring rubrics for use in performance assessment. When included in a computer-delivered test, these items can be accessed by the student, scored by a teacher using the provided rubric, and have scores submitted by the teacher following evaluation of the student's performance. Training of teachers to be fair and effective evaluators is crucial to the reliability and validity of scores from constructed-response items. Initially, however, it is expected that more effort be directed toward populating the item bank with multiple-choice items that can be more easily administered.

The item bank would be accessed online by state-level personnel. Items could be accessed from the bank either through a direct test delivery interface, if incorporated into the design and budget, or states could extract items from the bank for inclusion in their computerized tests delivered using programs available at the state level. Through these methods, states would have access to tests that, if appropriately assembled, would be likely to produce reliable scores and be valid for the purposes for which they were intended.

In order to ensure that items are aligned to the National Career Clusters and Pathways and appropriately assess the important content of CTE, experts or panels composed of such experts will need to review the items. These should include content experts, at least one testing expert, and appropriate representatives from the industry. Due to the breadth of the National Career Clusters and Pathways, they consist of over 5,000 performance elements, and the item bank should sample widely from these elements. States would select only elements that correspond to their own curricula, and there is also the potential for states to supplement the item bank resources with items aligned to their own specific curricular content if needed.

Questions still remain surrounding how the item bank should be populated and the test administered. The likely manner in which items will be added is that states will contribute the

items that they are currently using. From one perspective, this collective resource would be available to all the states that were contributing members. The structure of the ownership of the item bank is not clear at present, although the system would need to be self-sustaining. For example, it is possible that the National Association of State Directors of Career Technical Education consortium could hold ownership.

Computerized test delivery is likely a better option than paper-and-pencil testing, given the scope of the item bank. Potential state users wish to have the item bank operational within two years of its inception. It is expected that the item bank meets current interoperability requirements. Because critical decisions about the item bank and delivery system have not yet been made, it is impossible to provide a precise estimate of its cost.

New items will need to be written by individuals within each participating state or by a contracted test developer, and a managing organization for the item bank will need to be formed. The test bank needs to be able to export items to states' individual test delivery interfaces easily. Finally, training materials would need to be developed for a wide range of issues related to the item bank system.

#### Inclusion of Test Bank Items from Student-level CTE Competition and Existing Assessments

Ultimately, it is the vision of this group that the states, the National Research Center for Career and Technical Education, career technical student organizations (CTSOs), professional CTE associations and consortia, and partner organizations and associations work together to align their individual item banks to the National Career Clusters Knowledge and Skill Statements as part of a national shared item bank. It is the expectation that, when aligned directly to the Career Clusters Framework, CTSO competition guidelines or similar national student activities could serve as a resource in the development of constructed-response items related to performance assessment. As a result of the alignment process to the National Career Clusters Knowledge and Skills, stakeholder groups will be able to determine the extent of their role in the CTE assessment system.

#### **Multiple Measures and Other Tools in the Assessment System**

It is generally agreed that a single test should not be the only piece of information used in evaluating student learning. Even the standards for testing professionals advocate combining multiple sources of information when making important decisions. In everyday classrooms, teachers merge information gathered from observations, independent work, projects, and tests to make decisions about what students have learned and with what they may be struggling. There is a question, though, about how to collect data about students in a way that is standardized enough to report for accountability purposes and yet meaningful and authentic enough that it accurately reflects students' knowledge in CTE fields.

As with all assessments, the purpose of the assessment must guide decisions regarding its format and content. Whether the measures are to be used for program evaluation, judging

student proficiency or career-readiness, or professional certification, for example, helps determine the scope and format of the assessment. Further, the academic and career-technical standards themselves may shape how the knowledge and skills would best be assessed.

There is currently a large focus within education and assessment on end-of-course assessments that can be used for accountability (i.e., summative assessments). Other overarching assessment types include formative assessment and interim assessment. Formative assessment has long been used by teachers within their classrooms to inform instruction and improve learning. This type of assessment can be less formal and standardized than summative assessments for accountability, but districts or states can also provide more structured tests for teacher use as formative assessments. Interim assessment is another assessment type, wherein tests are used to help teachers and administrators plan for later outcomes such as summative assessments (see Perie, Marion, & Gong, 2009). Thus, multiple measures of student learning are used throughout the school year.

The use of performance assessments or portfolios may nevertheless serve as an excellent option for the constructs in CTE curriculum not easily measured by multiple-choice items and as an option for occupation-specific knowledge and skills (those beyond the scope of the National Career Clusters Knowledge and Skill Statements). However, performance assessments come with their own challenges. First, performance or portfolio assessments are less standardized and objective than multiple-choice exams. If performance assessments or portfolios are included, it is essential that rubrics and scoring guidelines are clear and specific enough to facilitate reliable scoring—scoring where different qualified judges rate the performance similarly. If students must produce a finished project, the cost of providing equivalent materials for all test takers would add up quickly. The smaller number of students assessed in CTE relative to general academic courses potentially could allow for tasks that may be prohibitive in larger scale assessment, but as discussed throughout this paper, funding and budget concerns are influential in all the decisions to be made regarding CTE assessment.

### **CTE and Student Portable Credentials Including the Advanced Placement Model**

An important purpose of the CTE assessment system, not to be lost in the need for data about CTE program effectiveness, is the need to promote student college and career readiness. We believe that an effective assessment system can facilitate that purpose by providing the valid and reliable assessments needed to build the framework for widespread, high-quality, portable credentials. Credentials such as transcribed postsecondary credit, industry-recognized certifications, and/or Advanced Placement.

Consideration of the College Board's Advanced Placement® model for accomplishing the goal of a portable credentials associated with the common core academic and technical standards provides merit. The Advance Placement® model couples high school instruction at the level of college work and then provides a generally portable credit that students can utilize in their collegiate programs. The credibility associated with a nationally recognized and

implemented system enhances the continuity of expectations, clarifies the outcomes for completion, and provides a system for achieving portability. It must be a goal of any CTE assessment program to provide such portability, whether to higher educational programs or the workplace.

***Goal 4. Create a national clearinghouse of current industry-based assessments and related credentials/certifications***

The proposed CTE assessment system pairs a national item bank with a national assessment clearinghouse. While the item bank would provide items for states to use in creating their own state-level CTE assessments, the assessment clearinghouse would primarily provide information about existing technical assessments that states could choose to purchase or use. The issues related to a CTE assessment clearinghouse are not as complicated as those of the item bank. Considerations in the adoption of a national assessment clearinghouse were outlined by Derner, Klein, and Hilber (2008). Like the item bank, goals of the clearinghouse include helping states to acquire valid and reliable assessments and increasing the consistency of assessments used by states for CTE. The clearinghouse would do so by identifying and comparing existing certification, credentialing, and licensure tests, for example, that could be used in secondary and postsecondary schools, either directly or after modification.

The primary focus of the clearinghouse would be sharing objective information regarding third-party assessments used by schools and employers to document attainment of technical knowledge and skills. These tests would include national credentialing, certification, and state licensing examinations, as well as assessments of technical skill attainment. The U.S. Department of Education Office of Vocational and Adult Education (OVAE) has developed clear links between CTE course work and career pathways to specific occupations that are expected to improve the usefulness of the clearinghouse. The profile for each assessment would include detailed information about the test, such as price, population, educational prerequisites, the type of test, scoring procedures, administration time, and technical qualities of the test, as well as directions for how to access the test. It is important that this information be made easily accessible and navigable in order for the clearinghouse to achieve its goals. This compilation would allow states to choose between existing measures or to determine whether it will be necessary to create their own tests using the item bank. Additionally, although it is not addressed in the paper, professional reviews of the included assessments could also prove extremely valuable.

Some questions regarding the assessment clearinghouse platform and delivery do still remain. The assessment clearinghouse should be web-based and should be accessible using internet resources typically available. Information should be reported in a standard format and searchable, as well as cross-referenced with the National Cluster and Pathway performance elements. Additional complexity, such as the ability to export reports, could be built into the system. Only state CTE administrators and perhaps those who have joined a select group (such as collaborative members) would be able to access the clearinghouse, at least initially. The

clearinghouse will be protected by secure passwords. A project manager would need to be appointed or hired to maintain the site and facilitate its use. In order to assure that all information remains up to date, a schedule and plan for updating information in the clearinghouse would need to be established. As with the item bank, final cost will depend on decisions made regarding the design and use of the clearinghouse. The U.S. Department of Education, the National Research Center for Career and Technical Education, and partners have taken some initial steps to bring this clearinghouse into practice, and future work should begin with the results of their work. Due to the clear utility of a national assessment clearinghouse and the relatively straightforward steps needed to implement the clearinghouse, the authors of this paper strongly recommend timely implementation of a national assessment clearinghouse.

## **Conclusion**

This paper represents a call to action. The state directors of career technical education have a great desire to work together to reformulate CTE based upon the National Career Clusters and Pathways. These directors have considerable contact with those actually delivering instruction to students throughout their states. The proposed system is focused on career and college readiness and is largely assessment driven. CTE accepts that quality assessments of academic functioning and skills development represent a goal to be achieved that can be achieved. The time is now. The work has begun. We must move the country forward to achieve the goals we have set for ourselves. CTE can be a driving force in American education, making it more competency based yet also focused on learning to learn, future oriented and globally competitive.