BUILDING A STRONG RELATIONSHIP BETWEEN COMPETENCY-BASED PATHWAYS AND CAREER TECHNICAL EDUCATION

Achieve & National Association of State Directors of Career Technical Education Consortium (NASDCTEc)

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EXECUTIVE SUMMARY

The nation's shift toward K–12 standards that ensure that all students graduate from high school prepared for success in college, careers, and life has created a new imperative for education systems across the country. To meet these rigorous benchmarks, several states are exploring how to move away from the 20th-century construct that learning must advance at a set pace and toward a student-centered approach known as competency-based pathways (CBP), through which student learning is marked by mastery rather than seat time.

This brief identifies opportunities for collaboration, integration, and strengthened relationships between CBP and career technical education (CTE) leaders. It explores the leverage points and challenges to integrating CTE into a CBP system and, where possible, offers examples of how states and districts have started the journey to do so. Key questions are provided to help states and districts consider how CTE is, can, and should be a part of their CBP strategies.

States that intentionally include CTE in their CBP vision can use CTE's inherently competency-based elements to help break down the classroom walls that separate academics from CTE and to value learning wherever it happens, create opportunities for teachers to collaborate and innovate, and discover new ways for students to demonstrate their mastery of college- and career-ready (CCR) standards and competencies.

States can explore a number of leverage points to better integrate CTE into their CBP strategies, including supporting:

- *Contextualized learning* environments for all students;
- *Self-directed pathways* anchored in students' career interests and inclusive of the full breadth of CCR knowledge and skills;
- High-quality *experiential learning opportunities* that allow students to apply their learning in real-world contexts;
- *Project-based learning* as a platform for contextualized teaching, student-directed pathways, and experiential learning; and
- CTE as a *component and complement to CBP assessment systems* that authentically measure student learning.

As states move forward with integrating CBP and CTE, they have a number of factors to consider:

- *Incorporating CTE at the outset* to break down the deeply entrenched silos that exist at every level of the education system, particularly between CTE and academic leaders and educators;
- *Ensuring equitable student access* to high-quality CBP across CTE areas;
- *Building capacity for districts, schools, and educators* to transition to an integrated CBP system;
- Overcoming *data and reporting challenges* to capture student proficiency where it happens, including beyond the traditional school walls;
- Recognizing that some elements of CTE programs are *still beholden to time;* and
- Crafting a *thorough, well-executed communications plan* to build shared buy-in and common understanding among key stakeholders.

INTRODUCTION

The nation's shift toward K–12 standards that ensure that all students graduate from high school prepared for success in college, careers, and life has created a new imperative for education systems across the country. To meet these rigorous benchmarks, several states are exploring how to move away from the 20th-century construct that learning must advance at a set pace and toward a student-centered approach known as competency-based pathways (CBP), through which student learning is marked by mastery rather than seat time.

A state's journey toward CBP has the potential to open new opportunities for students to learn — and demonstrate their learning — in meaningful ways that build toward their ultimate readiness for college and careers. Students in competency-based learning environments should be able to access engaging learning opportunities that are grounded in application and relevant to their career aspirations — a central focus of career technical education (CTE). As such, state leaders committed to advancing CBP should carefully consider how they can work together with CTE stakeholders to ensure that the systems are aligned and mutually reinforcing.

States that intentionally include CTE in their CBP vision can use its inherently competency-based elements to help break down the classroom walls that separate academics from CTE and to value learning wherever it happens, create opportunities for teachers to collaborate and innovate, and discover new ways for students to demonstrate their mastery of CCR competencies.

This strong relationship, in turn, can then encourage students to learn, demonstrate, and apply the full range of CCR knowledge and skills — namely the academic, technical, and employability skills that are so demanded in the workplaces of today and tomorrow. Strong connections between CTE and CBP also can ensure that students anchor their educational pathways in career interests and engage in meaningful career planning and exploration throughout their K–12 experiences.

COMPETENCY-BASED PATHWAYS (CBP) are designed to help all students reach college- and career-ready standards through the following strategies:

- Students advance upon demonstrated mastery.
- Competencies include explicit, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students.
- Students receive rapid, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include the application and creation of knowledge.
- The process of reaching learning outcomes encourages students to develop skills and dispositions important for success in college, careers, and citizenship.

Note: This definition of CBP guides Achieve's support to states and was adapted from a working definition developed by Chris Sturgis, principal of MetisNet, and Susan Patrick, president and CEO of iNACOL.

Sources:

Patrick, S. & Sturgis, C.. Cracking the Code: Synchronizing Policy and Practice to Support Personalized Learning. iNACOL. www.inacol.org/research/docs/iNACOL_CrackingCode_full_report.pdf;

Achieve. Advancing Competency-Based Pathways to College and Career Readiness: A State Policy Framework for Graduation Requirements, Assessment and Accountability. http://www.achieve.org/publications/advancing-competency-based-pathways-college-and-career-readiness

THE CHALLENGE

Despite the myriad intersections and leverage points between CTE and a competency approach, integration will not happen unless states purposefully include CTE in their vision for CBP and clearly demonstrate how and why CTE should be incorporated at every level. Without an integrated vision, states run the risk of perpetuating the silos between academic and technical education. At a time when states are trying to reimagine their education systems, keeping CTE and academics separate undermines the full potential for transformation by limiting the ways in which students can learn and apply their learning. Without integration, students enrolled in CTE programs would be unable to benefit from the additional flexibility afforded by a CBP system, and students in the CBP system would not be able to benefit from the additional experiences afforded through CTE.

This brief identifies opportunities for collaboration, integration, and strengthened relationships between CBP and CTE leaders. It also explores the challenges to integrating CTE into a CBP system and, where possible, offers examples of how states and districts have started the journey to do so. Key questions are provided to help states and districts consider how CTE is, can, and should be a part of their CBP strategies, particularly in the areas of standards, graduation requirements, assessments, and accountability systems.

Including CTE in a CBP system will certainly be a challenge but one worth conquering for the greater benefit of the system and the students it will serve.

Key questions:

- Where does CTE currently stand in your state's CBP priorities? What role do CTE leaders play in your state's CBP strategy?
- What is the problem the state is trying to solve or the outcome the state hopes to achieve by integrating CTE into the CBP strategy? Are there specific consequences in a system that is not aligned?
- What are the leverage points between CBP and CTE that currently exist within your system?
- Where are the major challenges in making use of those leverage points?
- What systems are in place at the state level to monitor any systems integration efforts?

DEFINING COLLEGE AND CAREER READINESS

From an academic perspective, to be college- and career-ready, high school graduates must have studied a rigorous and broad curriculum, grounded in English language arts/literacy, mathematics and science, but also consisting of other subjects that are part of a well-rounded education. Students must also possess the skills or habits of mind that enable them to apply their knowledge in a range of environments and situations, including those necessary to qualify for and succeed in:

- Entry-level, credit-bearing courses without the need for remedial coursework; and
- Postsecondary job training and/or education necessary for his or her chosen career (e.g., technical/vocational program, community college, apprenticeship, or significant on-the-job training).

In 2012, 30 organizations, led by the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) and including Achieve, came together to form the Career Readiness Partner Council and develop a shared definition of career readiness. This definition builds on the idea that college- and career-ready high school graduates must have completed a rigorous curriculum that is well rounded and anchored in core academic disciplines. Beyond that, a career-ready person also must be able demonstrate both academic and technical competencies aligned to his or her chosen career field as well as the employability knowledge, skills, and dispositions necessary to succeed in today's global economy.

Source: Career Readiness Partner Council. Building Blocks for Change: What It Means to be Career Ready. www.careerreadynow.org/docs/CRPC_4pager.pdf

LEVERAGE POINTS

States can explore a number of clear leverage points to mutually enhance and strengthen their CBP systems and CTE programs. At their heart, all of these elements of high-quality CTE and CBP systems are interrelated and seek to ensure that students are engaging in meaningful and engaging learning (inside and outside the classroom) and have agency over their pathways and how they demonstrate mastery. Such outcomes rely on contextualized, project-based learning, and assessment systems capable of tracking learning wherever or however it happens.

Contextualized Teaching and Learning

One of the great promises of CBP for students is its focus on giving students the flexibility to learn, and demonstrate proficiency on, standards or competencies in a variety of educational settings. A student, for example, may demonstrate proficiency in English language arts (ELA)/literacy speaking and listening standards through a project in a history course. By fully integrating CTE into a school's CBP system, students have multiple opportunities to learn — and demonstrate their learning — in an applied way. For example, a student may be able to demonstrate mastery of biology standards or competencies within a range of CTE courses, such as animal science, allied health, or biotechnology.

Successful CTE programs naturally reinforce core academics. Many states have validated courses in certain Career Clusters®, such as Agriculture, Food & Natural Resources, or science technology engineering and math (STEM), as equivalent to science or mathematics courses. In one of many state examples, Kentucky has developed a four-course sequence in carpentry that also allows students to earn geometry credit by embedding within the sequence aligned standards and competencies. In partnership with Kentucky Education TV, the state Department of Education developed a series of videos highlighting key geometry competencies that carpentry teachers can use when developing curricula.

Since the release of the Common Core State Standards (CCSS), a number of states have reviewed their academic and CTE standards to find natural points of alignment and have developed instructional resources for both CTE and academic educators.

One example of standards alignment efforts within a proficiency-based context is **Maine**, which is currently leading an effort through which instructors from ELA/literacy, mathematics, and CTE are identifying "intersections" in content and competencies to support the implementation of the state's proficiency-based diploma. Maine has described their work as proficiency-based learning. Other states and organizations use a range of terms to describe the same idea that students advanced based upon demonstration of mastery. For purposes of this paper, competency-based pathways (CBP) encompasses all of these related terms.[1]

Last year, **Connecticut** used a portion of its state reserve funds from the federal Carl D. Perkins Career and Technical Education Act to create an innovation grant for local recipients to collaborate to develop integrated CTE-academic lesson plans. One grantee created competency-based curricular units that were aligned to the district's locally approved CTE-specific graduation competencies and the school's own cross-curricular graduation competencies and performance indicators in core academic areas.[2]

Self-Directed Student Pathways

A hallmark of CBP is that they are student-centered and student-directed, meaning that students have "voice and choice" in how they demonstrate their mastery of knowledge and skills. This self direction can be supported by experiential learning opportunities, capstone projects, and CTE programs. When done right, both CBP and CTE put students in the driver's seat of their education by providing them with the flexibility to build multiple, but equally rigorous, course and competency sequences aligned with their interests and post-high school plans. CTE programs in particular help students anchor their selected courses and experiences to specific career goals.

Central to students having self-directed pathways is strong and effective guidance and counseling, often supported by an individualized learning plan that takes into account course taking, competencies, and experiential learning — all anchored in high school graduation and students' college and career plans.

Vermont's Flexible Pathways legislation, which supports the state's move toward a comprehensive proficiency-based system, requires that all students have personalized learning plans that map the academic standards and "transferable skills" that each student's pathway will follow to demonstrate competency and graduate. While these learning plans do not (yet) explicitly include specific technical content, they provide a platform that can be expanded over time.

Experiential Learning Opportunities

Many CTE programs offer opportunities for work-based learning (WBL), which aligns perfectly with CBP's commitment to allowing students to learn and demonstrate their mastery of competencies through experiential (or extended) learning opportunities (ELOs). CBP systems can be structured to give students credit for learning in multiple environments, even outside of the classroom. In many communities, the students most likely to take advantage of such experiential learning are those in CTE programs.

ELOs can encourage students to discover subjects or topics they are passionate about and explore across content areas and beyond the school walls. The other benefit of ELOs, in particular those that are employer-based, is that in addition to augmenting and applying academic content acquisition, they offer the opportunities for students to demonstrate a broader range of CCR skills.

An integrated ELO might look something like this: A drafting student interns one day a week at an architecture firm, where he or she demonstrates required communications, physics, and technical skills through participation and completion of

EXPERIENTIAL LEARNING OPPORTUNITIES can be defined in multiple ways. New Hampshire, which uses the interchangeable term "extended learning opportunities," defines them as "the primary acquisition of knowledge and skills through instruction or study outside of the traditional classroom methodology," which includes but is not limited to:

- Apprenticeships
- Community service
- Independent study
- Online courses
- Internships
- Performing groups
- Private instruction

Source: New Hampshire Department of Education. Extended Learning Opportunities. http://education.nh.gov/innovations/elo/

a capstone or client project. In turn, the student can earn credit for meeting such competencies and maybe even earn a relevant industry-recognized credential along the way, at his or her own pace, without regard to seat time or the school calendar.

Although the process of identifying and validating individual ELOs relies heavily on local schools and districts, the state also has a role in increasing access to, and ensuring the rigor of, such experiences. For example, **New Hampshire** has made ELOs a central component of its competency-based strategy to provide all students with engaging and rigorous real-world experiences outside of the traditional classroom. The New Hampshire Department of Education determined four necessary components of high-quality and rigorous ELOs — research, reflection, product, and presentation. It also deployed a wealth of technical assistance to support districts' efforts to expand opportunities aligned to those components to all students.[3] An evaluation of the state's effort to expand ELOs emphasized the critical importance of having an in-school coordinator for ELOs and found positive outcomes. Students reported greater self-confidence, greater work readiness, and that they learned more through their ELOs than they would have in traditional classrooms. Students also reported that ELOs gave new voice to both teachers and students to explore themes beyond the traditional curriculum.[4]

WORK-BASED LEARNING (WBL) can take on many forms, including internships, cooperative work experiences, simulated work environments, and apprenticeships. However, WBL opportunities do not necessarily need to occur in the workplace; they can also be delivered virtually through digital platforms or through authentic projects or problems that are designed and evaluated by employers and completed in a school setting.

Michigan has built opportunities for students to take advantage of ELOs into state policy by allowing students to earn high school credit for CTE- and non-CTE-related WBL experiences. To ensure that these experiences are rigorous, each participating student is required to have a training plan that includes performance elements, drawn from state CTE and academic standards, to assess progress.[5]

Another way experiential learning can be offered within a CTE program is through career and technical student organizations (CTSOs), in which more than two million students participate.[6] CTSOs are co-curricular organizations that extend teaching and learning through leadership development and skills-based competitions for CTE students at the local, state, national, and even international levels.[7] Through CTSO competitions, students perform authentic work-based tasks that are designed and evaluated by employers and aligned to national and state industry and academic standards. Many CTSO competitions require a blend of academic, technical, and employability skills, creating a truly authentic, integrated environment for learning and assessment.

In **Connecticut**, a high school using CBP allows students to demonstrate their mastery based on the competencies embedded in the Health Occupations Students of America (HOSA) certified nursing assistant competition, which are developed to be a more authentic demonstration of students' academic, technical, and employability skills. The competencies include an explicit focus on content-specific knowledge, as well as communication and other transferrable skills.

Project-Based Learning

Project-based learning, which allows students to gain and demonstrate knowledge and skills by working on an authentic project over a sustained period of time, is another shared approach of CBP and CTE that can be further enhanced through the integration of the two. As a teaching tool, project-based learning draws on contextualized teaching and learning; student-directed pathways; and even WBL, if employers or community partners are involved in the development or review of the final projects. This approach anchors learning in the real world and challenges students to apply their knowledge and skills creatively and often in teams. Much of CTE instruction already exists in this space of real-world challenges and practical application to tackle workplace-oriented projects.

Project-based learning involves completing complex tasks that typically result in a realistic product, event, or presentation to an audience. Thomas (2000) identifies five key components of effective project-based learning. It is:

- Central to the curriculum;
- Organized around driving questions that lead students to encounter central concepts or principles;
- Focused on a constructive investigation that involves inquiry and knowledge building;
- Student-driven (students are responsible for designing and managing their work); and
- Authentic, focusing on problems that occur in the real world and that people care about.

Sources:

Barron, B. & Darling-Hammond, L. (2008). Teaching for Meaningful Learning: A Review of Research on Inquiry-Based and Cooperative Learning. http://www.edutopia.org/pdfs/edutopia-teaching-for-meaningful-learning.pdf

Thomas, J. W. (2000). A review of project based learning. Cited at http://www.edutopia.org/pdfs/edutopia-teaching-for-meaningful-learning.pdf.

In 2013, Taylor County High School in **Kentucky** transitioned to CBP as part of its school district involvement in the state's Districts of Innovation.[8] Using a project-based learning approach, a marketing teacher "adopted" businesses throughout the community and required students to investigate those companies' customers before developing and delivering marketing plans. Based on this project, the school is now continuing to work with those companies to identify future partnership opportunities.

Illinois has nine STEM Learning Exchanges tasked with improving the coordination and delivery of resources, WBL, career guidance, and partnerships to support local programs, competency-based or otherwise. One core function of these Learning Exchanges is to sponsor challenges that allow students to work in collaborative teams to address real-world interdisciplinary problems. Schools with integrated CBP and CTE programs are particularly well positioned to take advantage of these resources. Where CTE especially adds value is in making the projects truly authentic through relationships with business, industry, and the broader community.

Performance-Based Assessments

Within a CBP system, assessments should offer meaningful, positive learning experiences for students and provide teachers with actionable information to support learning while also sending clear signals about students' levels of mastery. As noted in Achieve's *Assessment to Support Competency-Based Pathways*, policymakers must give careful consideration when designing and implementing assessments to ensure that they validate student proficiency.[9]

To realize the promise of CBP to improve equity and excellence for all students, assessments must provide accurate and useful information. Specifically, CBP assessments must:

- Allow students to demonstrate their own learning at their own pace;
- Add to student learning by allowing them to apply and extend their knowledge;
- Require demonstration of learning; and
- Provide flexibility, where possible, in how students demonstrate their learning.

Source: Achieve and The National Center for the Improvement of Educational Assessment. Assessment to Support Competency-Based Pathways. www.achieve.org/publications/assessment-support-competency-based-pathways

A number of states already require state-developed end-of-course or end-of-program assessments within CTE courses, along with industry-recognized credentials. Both assessment types often include both performance-based and practical (i.e., pen-and-paper) components. In addition, many high-quality CTE programs also include a locally required, cross-disciplinary capstone project. States have begun to consider using these rigorous and reliable CTE assessments in their CBP systems as a complement to existing assessments to create an authentic measurement of student knowledge.

Rhode Island requires all students to complete two performance-based assessments for graduation, which may include student portfolios, exhibitions, and/or comprehensive course assessments, selected locally. The state defines performance assessments as "real-life experiences that require cross-cutting skills including communication, problem solving, creativity, and teamwork." How districts meet this requirement is ultimately a local decision and some schools have decided to embrace CTE as one strategy.

For example, Coventry High School, a comprehensive high school, requires both a graduation portfolio and a capstone project. Students have flexibility in the focus of their capstone projects, but CTE students are expected to complete a project within their field of study.[10] The William M. Davies, Jr. Career and Technical High School requires a senior project, which must include a career portfolio, paper, product, and presentation. The school's published guidance provides clear examples of how students can and should complete their senior projects aligned to their CTE path.[11]

KEY CONSIDERATIONS

Recognizing the need for and committing to an integrated CBP and CTE system are just the initial steps for states and districts. Achieving true integration is not an easy feat. It requires a common vision, well-designed and implemented policies, and buy-in from multiple stakeholders. As states move forward with integrating CTE and CBP efforts, they need to consider a number of factors.

Incorporating CTE at the Outset

Nearly every challenge facing a CBP system — especially when blurring the lines between CTE and academics — can be connected back to the silos that exist from within school walls all the way to the highest levels of state government. Truly breaking down these silos is the linchpin to creating an interdisciplinary, collaborative environment at the school, district, and state levels. It also facilitates the cultural shift necessary to establish an effective system of seamless pathways that provides an equitable experience for all students to achieve the full breadth of college- and career-ready knowledge and skills.

States must intentionally address barriers that, in practice, can impede a fully integrated CBP system — from high-level policy barriers to implementation challenges. Addressing those barriers can include removing bureaucratic roadblocks to ensure that leaders responsible for CBP and CTE within state agencies are connected and collaborating. Policymakers also can use legislation to provide clear direction and support for an integrated system by including deliberate language about the role of CTE in laws and policies guiding CBP.

Even with clear direction from a state's guiding laws and policies, leaders must pay keen attention to implementation and actively look for ways to embed CTE along the way. To achieve an integrated system, CTE must be an element of the states' (and districts') implementation plans for CBP. This integration can include ways in which CTE stakeholders are involved in the development and delivery of CBP and even how funding for each can be leveraged to support implementation.

In **Maine**, CTE career academies and apprenticeships were included among the multiple pathways listed in the 2009 state law that established statewide proficiency-based diplomas. In practice, however, incorporating CTE into the proficiency system at scale in Maine, where local control reigns, will require very intentional state support to promote successful implementation. While some regions are successfully integrating CTE and CBP, in some districts there has been debate over whether students should be able to demonstrate proficiency on the state's new CCR standards at an area technical center. As such, state leaders are now taking specific actions to help locals identify and strengthen the natural intersections between CTE and academics in a proficiency environment. CTE teachers and their academic partners are being brought together through workshops to find these intersections, starting with the state's two largest CTE programs, carpentry and automotive technology.

Key questions:

- Is CTE part of your state's overall CBP vision and strategy? If not, where can it be embedded in your state's CBP strategy?
- Is CTE embedded in key or relevant legislation/regulation? Does key CTE legislation/regulation reflect your state's transition to CBP?
- How are CTE leaders involved in CBP strategy, planning, and implementation at the state or local level?
- What misperceptions exist about the role CTE can play within CBP, and how can you support a strategy to overcome these misperceptions?

Attending To Equity

Creating and ensuring access to rigorous CBP is a challenge unto itself; creating equally rigorous pathways that fully integrate academic and CTE content makes the work of states and districts even more challenging. Any CBP system must protect the promise to students and promote equity in opportunity and outcomes to turn around the rampant and persistent disparities that historically have plagued the American education system for students of color, students in poverty, students with disabilities, and English language learners.[12]

As states and districts transition to CBP, states must establish processes to determine and validate the level of rigor across various pathways. Such quality control processes affect professional learning opportunities for educators, the development or selection of curricular and instructional materials, and assessment systems. This process quickly becomes more complicated when adding CTE, as additional learning experiences and educators are now involved in the system. Schools and districts need well-thought-out processes to ensure that curricular and instructional materials and assessments are of high quality and aligned to appropriate standards or competencies.

To support high quality in CTE integration efforts, Achieve developed a brief, *Common Core State Standards & Career and Technical Education: Bridging the Divide between College and Career Readiness*, that highlights several states that have engaged in processes to align curricular and instructional materials and outlines a set of strategies that state and district leaders can use to engage the CTE community in the implementation of the CCSS.[13] One additional resource to support this work is the *CCSS-CTE Classroom Tasks initiative*, developed by Achieve and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc).[14] The sample tasks developed through this initiative were designed to help educators and education leaders promote rigor within mathematics-related CTE pathways.

Such quality control is no easy feat, as the quality and rigor of existing CTE programs can vary and systems may not yet be in place to monitor rigor across learning experiences. States will need to augment or develop new processes to identify and validate specific competencies across the 16 Career Clusters and locally developed CTE programs, offer aligned assessments for each CTE area of focus, and monitor students' access to quality pathways. As states develop strategies for integrating CTE into CBP, the issues of equity and consistent levels of rigor must be considered at every point in the process.

Key questions:

- Do students have equal access to a wide variety of pathways, including CTE-focused ones, within your state's CBP system? How does your state monitor or measure this?
- What legislation and/or guidance ensures that multiple delivery models and diverse student populations will be reached by CBP?
- What processes does your state have in place to ensure equal rigor of all pathways? What systems have been put in place to monitor rigor across educators and learning experiences?

Building District and School Capacity

There is no question that implementing a CBP system is a massive undertaking, with districts, schools, and educators responsible for the heaviest implementation lift. To ensure that CBP are implemented with fidelity *and* well integrated with CTE, states need to help districts build and sustain capacity by offering technical assistance, creating or disseminating curricular and instructional resources and implementation tools, providing professional learning opportunities for administrators and educators, building communities of practice so those on the ground can learn from one another, and/or providing various incentives.

Colorado offers a case study of a state that has engaged districts through a community of practice and a two-tiered system of district support. The Colorado Department of Education (CDE) developed a study group of 10 districts interested in CBP. These districts participated in site visits and conversations with national experts to better understand what it would take to implement CBP. For those districts that were committed to transitioning to CBP within 24 months, CDE provided more hands-on technical assistance in the areas of stakeholder engagement, implementation planning, and standards and assessment.

Connecticut statute allows for local school boards to award course credit through students' demonstration of mastery, and in an effort to support districts and schools, the state has formally adopted guidelines for mastery-based learning. The guidelines provide guidance on policy, practice, and community engagement issues as schools and districts undertake the transition. These guidelines will be complemented by a website, which will offer districts additional guidance and resources.

The **New Hampshire** ELO pilot was designed to support school districts in rapidly scaling ELOs. The New Hampshire Department of Education and other partners provided a wealth of professional learning and support to help all participating schools implementing ELOs. The state and multiple partners offered on-site technical assistance and professional learning opportunities, networking events, and statewide institutes and conferences as schools scaled up their efforts.[15]

In addition to system-level capacity, attention also must be paid to educators' capacity to deliver integrated instruction to students and the state and district role in providing critical professional learning opportunities to build such capacity. Increased collaboration between CTE and academic teachers can help provide instruction that is both academically rigorous and anchored in real-world context. However, academic instructors have long struggled to teach contextualized, applied lessons; CTE educators have struggled to teach academic subjects such as literacy and mathematics; and barriers, such as a lack of interdisciplinary planning time and professional learning opportunities, remain in place. Teachers from across content areas must be able to come together to identify the overlaps in standards and competencies and build a common vocabulary so common knowledge and skills can be reinforced throughout the school building.

Kentucky requires all teachers, including those coming from industry to CTE programs, to take a literacy course to assist them in teaching reading skills to their students. Additionally, the commonwealth recommends that district-provided professional learning for all educators devote time to both content and integration.

Illinois' Pathways Exchange is helping schools build capacity by tapping employers to develop realistic workplace scenarios to be taught in the classroom through WBL that are also aligned to the state's CCR standards. The scenarios require students to work in teams to solve a workplace problem. The state leans heavily on a train-the-trainer approach to ensure that educators are adequately prepared to guide students' projects while still letting students drive the process.

Key questions:

- How is your state supporting districts that are already pursuing CBP (e.g., targeted technical assistance, resource development, communities of practice)? What are the avenues within those support efforts for alignment with CTE?
- How is your state monitoring local implementation of CBP to better target supports?
- Does your state encourage collaboration between CTE and academic educators? How does this collaboration happen?
- Do your state's teacher certification requirements for academic and CTE educators enable collaboration across disciplines?

Capturing Learning Where It Happens

In an ideal CBP system, data and reporting systems allow a student's demonstration of proficiency to be captured wherever it occurs. While this presents a challenge to implementing a CBP system more broadly, incorporating CTE creates an even more complex set of hurdles, particularly given its unique delivery systems.

Secondary CTE instruction can occur in many locations — at comprehensive high schools, career academies, charter or magnet schools, and/or shared-time centers (also known as area technical centers). Some of these delivery systems, such as career academies, are natural platforms for integrating CTE and CBP, given their career-focused themes, shared vision, and level of collaboration among leaders and teachers. Pre-apprenticeships also can be strong vehicles for integrating CTE and CBP, as they are anchored in attaining competencies defined by industry and can be delivered more flexibly.

Conversely, other structures can be significant barriers to integration. Area technical centers, the primary CTE delivery system in **Vermont** and **Maine**, among other states, are separate from comprehensive high schools and can require students to travel 30 minutes or more to attend their CTE classes part time throughout the week. In a CBP system in which academic-technical teacher collaboration is key, being in a physically separate location can make this collaboration nearly impossible without creative solutions. ELOs that take place outside of school present their own set of challenges for data and reporting when trying to determine how to capture proficiency and who will do so.

States also need to ensure that they have appropriate and actionable data and reporting systems that can report timely data on student progress and can span multiple providers and locations. Furthermore, educators need both the capacity to make use of assessment and reporting systems and the ability to trust that they can rely on that data to inform their instruction and student advancement within a competency-based system.

It is incumbent upon districts to clarify the role of each educator and partner within a system's chosen assessment system. There needs to be clarity around who can measure and validate students' mastery of competencies and who can play a support role, assisting students in meeting specific benchmarks by embedding specific competencies into their instruction. These structures need to be supported by robust and collaborative professional learning opportunities that focus on how mastery should be measured and validated with consistency and how to use the data systems accurately. Without clarifying policies and opportunities for collaboration, there will continue to be a lack of capacity and trust among systems and educators.

In **Oregon**, Clackamas Community College offers high school students dual credit for approved WBL activities through its "Smart Internship" program. Students can earn one college credit for every 30 hours of work through their internships — and up to 12 credits per year. The college offers training and resources to the employer partners, and the WBL training plan is developed collaboratively by the student, employer, and school coordinator. The training plans are aligned to the state's CTE standards, with measurable indicators, and the number of college credits awarded is determined by both hours of participation and employers' evaluation of students' mastery of specific technical and employability skills, as approved by classroom instructors.[16]

Key questions:

- Who is or can be responsible for capturing students' demonstration of proficiency across content areas in your state, including beyond the school walls (e.g., at area technical centers or WBL experiences)?
- What processes are in place to identify who can determine proficiency on technical and academic competencies and how?
- What data system(s) does your state use to capture learning, and what training do educators receive to support their use of it?
- How is secondary CTE delivered in your state, and how can each of these delivery systems be addressed in your state's CBP strategy and implementation plan?
- What processes are in place to help districts overcome the challenges of capturing learning in a diverse CTE delivery system?

Beholden to Time

Many proponents of CTE will argue that it is inherently competency-based. In some ways, this argument is accurate, given that many CTE programs are anchored in competencies, project-based learning, and performance-based assessments. However, in many other respects, CTE is still beholden to time, as much of secondary CTE is still delivered through comprehensive high schools that follow traditional seat-time requirements. Yet, there are many examples of how CTE can be flexible to fit the various delivery systems available — from 50-minute daily classes in a comprehensive high school to half-day classes at an area technical center.

Industry-recognized credentials, a feature of many CTE programs, also rely on time — both in terms of a student's eligibility age and seat-time requirements. Licensure and credential requirements often mandate a certain number of classroom and/or experiential hours. However, because these credentials and licenses can be obtained during or after the school day, they can be built flexibly into student-directed pathways with intentionality.

Trust and communication are paramount to create the cultural shift necessary for an integrated CBP system. Due to time constrictions on credentials, simply moving them to take place outside of the school day could be perceived by some as CTE being squeezed out of the schedule. Leaders must be able to communicate that CBP provides more opportunities, rather than takes time away from CTE.

Key questions:

- What are some ways in which CTE programs are flexibly using time to deliver instruction?
- How are districts leveraging co-curricular activities, such as CTSOs, WBL, and other out-of-school time programs, to help students meet the time requirements of their industry-recognized credentials?

Making the Case for CBP and CTE

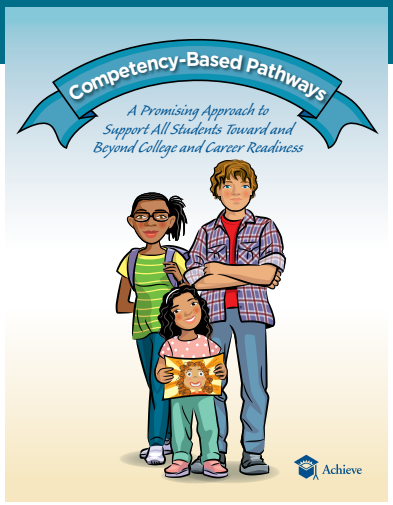
Implementing CBP requires significant changes that need to be embraced by multiple stakeholders — schools, students, parents, teachers, the community, and others. A thorough, well-executed communications plan should begin before and continue during and after a state decides to pursue CBP. History has shown that implementing change of this magnitude cannot be accomplished without a strategy that engages key stakeholders at every level. The size of this challenge cannot be ignored — and neither can CTE.

CBP COMMUNICATIONS TOOLKIT

Achieve has created a communications toolkit to assist states and districts in advancing CBP. Using tools on stakeholder engagement and sharing stories, states can work to embed CTE in communications and engagement strategies.

Source: Achieve. CBP Communications Toolkit. www.achieve.org/CBPCommunicationsToolkit

Creating shared language and buy-in is critical for proficiency to occur and be recognized and captured across districts' CBP systems. It also helps create common understanding among key stakeholders across the spectrum, from CTE and academic teachers to parents and community members.



Integrating CTE and CBP poses both opportunities and challenges for communications. On one hand, many of the leverage points highlighted above can be used to help states and school districts illustrate to stakeholders both inside and outside of the school system how CBP can improve a student's educational experience. On the other hand, such integration requires a focused communications effort, with targeted messages to CTE leaders and educators delivered by targeted messengers. If communications efforts are not proactive and consistent, the silos will persist and educators, both core academic and CTE, will resist change.

Maine learned this lesson firsthand during the debate over CTE rigor. In response, the state worked to dispel these myths through legislation, professional learning, and communications materials for districts. The state's Center for Best Practices has developed several resources and communication tools to help districts explain CBP. For example, one flyer reminds the reader that "CTE has been standards-based for longer than any other area of our school system. CTE provides a model for districts to learn from around assessing and reporting. … In a system that requires multiple pathways, the CTE pathways should be embraced."[17]

Key questions:

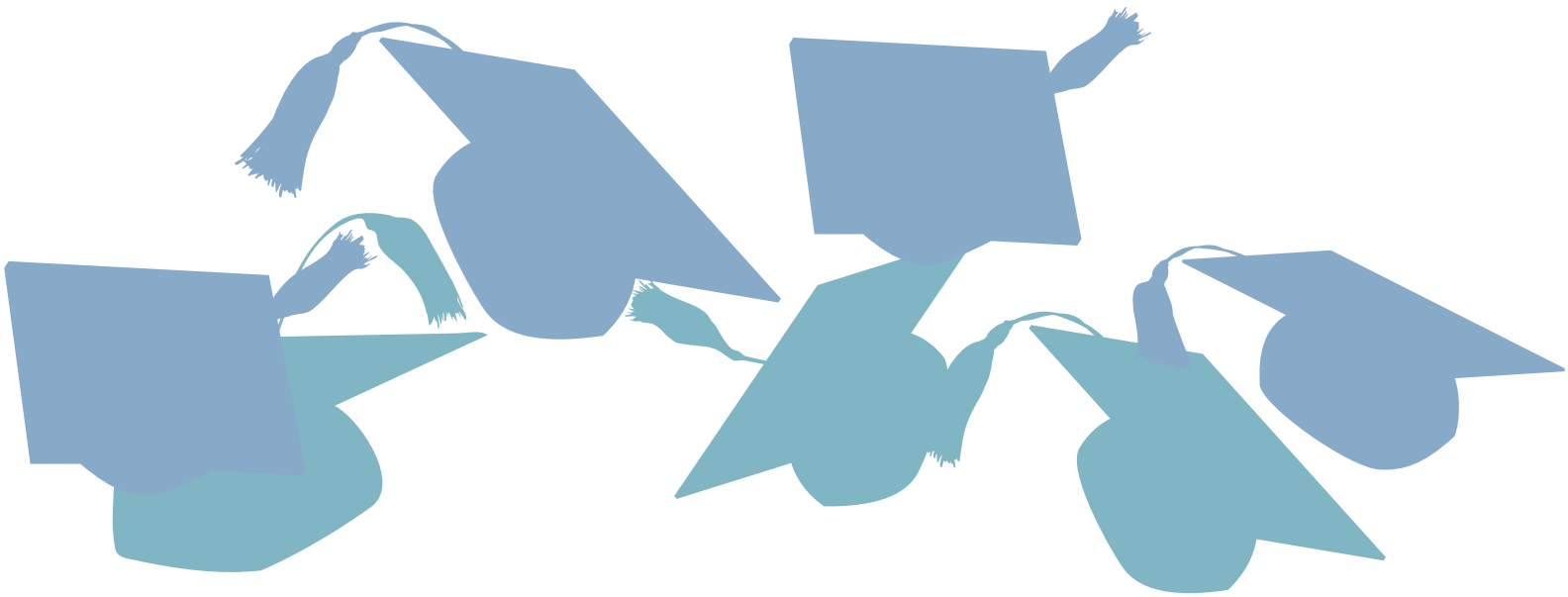
- Does your state have an established communications strategy for use throughout the transition to CBP? How is CTE represented in that plan? Which audiences are being targeted and reached? Academic and CTE teachers? Parents? Community members?
- What mechanisms or incentives are used to promote CBP, and how is CTE integrated into those strategies? How are they communicated?

CONCLUSION

Many of the challenges cited in this brief — integration, collaboration, and trust — are often the same obstacles facing CTE within a traditional educational system. This underscores why state and local leaders must break free of the language and mental constructs that have historically held CTE back from being fully integrated into the broader educational system. If leaders continue to cling to the education infrastructure of yesterday while trying to design the integrated pathway system of tomorrow, the results will fall far short of their ambitious goals, and the promise to students — once again — will be broken.

Through CBP, states have a tremendous opportunity to truly redefine education and what it means for students. Education can and should be a means for students to gain the full breadth of college and career readiness skills; it should allow them to get credit for proficiency by incorporating learning in a wide variety of settings; it should be taught in an interdisciplinary environment that values both academic and technical skills; and it should help students anchor their pathways based on their post-high school interests with opportunities for meaningful career planning and exploration.

The full potential of a state's integrated CBP system can be realized only when it recognizes that academic and technical skill attainment should not occur in separate classes or buildings but rather hand in hand. Now is the time to extend an open invitation to all stakeholders — especially those in CTE — to be equal partners at the table and ensure that the state's vision and implementation for CBP finally creates an education system that truly reflects student learning, aspirations, and achievement.



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Michael Cohen
President
Achieve

END NOTES

[1] Maine has described their work as proficiency-based learning. Other states and organizations use a range of terms to describe the same idea that students advanced based upon demonstration of mastery. For purposes of this paper, competency-based pathways (CBP) encompasses all of these related terms.

[2] The reserve fund is one of the more flexible portions of a state's Perkins allocation within current law. The statutory requirements of this reserved portion allow for the promotion of innovation, such as in the Connecticut example. (20 U.S.C. § 2322(c))

[3] New Hampshire Department of Education. *Guidance and Resources for Extended Learning Opportunities*. http://education.nh.gov/innovations/elo

[4] Zuliani, I. & Ellis, S. *The New Hampshire Extended Learning Opportunities Evaluation: Final Report of Evaluation Findings*. http://education.nh.gov/innovations/elo/documents/evaluation.pdf

[5] Michigan Department of Education. *Pupil Accounting Manual*. http://mi.gov/documents/5P-WorkBasedEducProg_41468_7.pdf

[6] Career and Technical Student Organizations Website. www.ctsos.org

[7] The National Coordinating Council for Career Technical Student Organizations (NCC-CTSO) is a coalition of national CTSOs serving CTE students and teachers across the 16 Career Clusters. www.ctsos.org

[8] Kentucky House Bill 37. http://education.ky.gov/school/innov/pages/districts-of-innovation.aspx

[9] Achieve. *Assessment to Support Competency-Based Pathways*. www.achieve.org/files/AssementtoSupportCBP.pdf

[10] Coventry High School. *Graduation by Proficiency: A Guide for Students, Parents and Teachers*. http://schools.coventryschools.net/highschool

[11] William M. Davies, Jr. Career and Technical High School. *Senior Project 2014*. http://senior-project.web.daviestech.org/modules/locker/files/get_group_file.phtml?fid=23474402&gid=2367525&sessionid=6403fc3a4b0d2bfcd944569fd5ee4aa2

[12] Achieve. *The Imperative for State Leadership*. www.achieve.org/files/AchieveCBPTheImperativeforStateLeadership.pdf

[13] Achieve. *Common Core State Standards & Career and Technical Education: Bridging the Divide*. http://www.achieve.org/CCSS-CTE-BridgingtheDivide

[14] Achieve & NASDCTEc. *CCSS-CTE Classroom Tasks*. http://www.achieve.org/ccss-cte-classroom-tasks

[15] Zuliani, I. & Ellis, S. *The New Hampshire Extended Learning Opportunities Evaluation: Final Report of Evaluation Findings*. http://education.nh.gov/innovations/elo/documents/evaluation.pdf

[16] Clackmas Community College. Smart Internships. www.clackamas.edu/smart

[17] Maine Department of Education. *Getting to Proficiency: Helping Maine Graduate Every Student Prepared*. http://maine.gov/doe/cbp/gtp-cte.pdf

1400 16th Street NW, Suite 510 • Washington, DC 20036
P 202.419.1540 • www.achieve.org

8484 Georgia Avenue, Suite 320
Silver Spring, MD 20910
www.careertech.org