Competency-Based Education Reference Material

1. The Past and The Promise: Today's Competency Education Movement, Competency Education Research Series

2. Understanding Competency Education in K12, CompetencyWorks

3. Aligning K-12 State Policies with Competency Education, CompetencyWorks

4. When Success is the Only Option: Designing Competency-Based Pathways for Next Generation Learning, International Association for K-12 Online Learning

5. It's Not a Matter of Time: Highlights from the 2011 Competency-Based Learning Summit, Executive Summary, International Association for K-12 Online Learning

6. It's Not a Matter of Time: Highlights from the 2011 Competency-Based Learning Summit, Executive Summary, International Association for K-12 Online Learning

7. Quality Performance Assessment: Harnessing the Power of Teacher and Student Learning, Nellie Mae Education Foundation and Center for Collaborative Education

8. Presentation on Competency Based Education, Discussion on Proficiency Based Advancement pursuant to Objective I.B. of the Department's and Board's Strategic Plan, Hawaii State Board of Education Student Achievement Committee, November 18, 2014

Students at the Center

JOBS FOR THE FUTURE

COMPETENCY EDUCATION RESEARCH SERIES

THE PAST AND THE PROMISE:

TODAY'S COMPETENCY EDUCATION MOVEMENT

By Cecilia Le, Rebecca E. Wolfe, and Adria Steinberg
Jobs for the Future, September 2014

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Students at the Center—a Jobs for the Future initiative—synthesizes and adapts for practice current research on key components of student-centered approaches to learning that lead to deeper learning outcomes. Our goal is to strengthen the ability of practitioners and policymakers to engage each student in acquiring the skills, knowledge, and expertise needed for success in college, career, and civic life. This Jobs for the Future project is supported generously by funds from the Nellie Mae Education Foundation and The William and Flora Hewlett Foundation.

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INTRODUCTION

The emergence of the modern American high school ranks among the most remarkable accomplishments in U.S. history. Over just a few decades, from the late 1800s through the 1930s, secondary education evolved from a scattering of elite, private academies into one of our most vital public institutions. Previously, few adolescents attended secondary school; most worked after eighth grade to help support their families. The extraordinary enrollment surges of the immigration era required massive investments and ambitious planning.[1] Cities and towns went on unprecedented construction sprees, while educational leaders invented the organizational and administrative systems that made it possible to manage the vast number of students and teachers who showed up at the new buildings. Thus took shape many of the features of high school that define secondary education today: students grouped into age-based cohorts; days divided into a series of class periods; classes combined into year-long courses; progress determined by grades; course grades determined by attendance and academic performance—and graduation based on accumulation of credits, earned for each course with a passing grade.

It does nothing to diminish those accomplishments to note that some of the organizational decisions, such as age-based grouping, were criticized from the start. Now, more than a century later, as we grapple with the greatest challenge of our current era—preparing all students from all backgrounds for college and careers—many people are taking a hard look at our hundred-year-old assumptions about the best ways to organize K-12 education, particularly at the high school level.

Champions of change support a variety of reform strategies. But one in particular—competency education[2]—is attracting significant interest for challenging the traditional "factory model" structure of the American school system, in which young people spend a standard amount of "seat time" in class and typically move to the next grade level at the end of each school year with their age-based cohort. In order to earn credits and advance, students are required only to earn cumulative grades above "F"—indicating anything from mastery to large gaps in knowledge and skills.[3] Hence students can graduate without ever filling in these gaps.

Competency education offers a fundamentally different approach than the early 20th-century industrial age model that prevails today. Although it is an evolving field with no universally shared definition[4] of what makes a model "competency based," advocates generally cite the fact that students are expected to demonstrate mastery of increasingly challenging material from a comprehensive set of learning objectives, or "competencies," aligned with state standards. These demonstrations of mastery do not occur at preset times, but when individual students are ready. Increasingly proponents call for infusing competency education with elements of personalization, in order to present a more student-centered alternative to the traditional model. They emphasize that students are all held to the same high expectations, but instruction is individualized to meet each person's strengths and challenges. For others, the most important thing is that teachers focus special attention on making sure those who are struggling in any area receive support until they reach proficiency.

However expansive the definition, the concepts behind competency education are not new; their origins reach back to the progressive education ideals of the early 1900s, and the ideas gained popularity in the form of mastery learning during the 1970s and 1980s. But while competency-based approaches never fully took root in the past, an unlikely fusion of factors shaping public education is broadening their appeal today: the growth of standards-based reform, interest in personalizing schools, and the development of new technological tools.

In this paper, we explore several essential questions about today's competency education reforms. Our intent is to lay a foundation for assessing the potential of competency-based approaches, as they currently exist and as they could eventually evolve. We believe that a reorganization of schooling is long overdue and that the reforms explored in this paper may have the potential to help narrow achievement gaps and better prepare all young people for life after graduation.

This paper attempts to answer several key questions about the emerging field of competency education:

- What is driving the interest and investment in competency-based education models and policy today?
- Given that education reforms focused on learning outcomes are not new, what historical efforts are current competency-based practitioners building upon and what lessons can we draw from them?
- What can we infer from research and theory on effective student-centered learning about implications for personalized competency-based education programs?
- What opportunities and challenges does the current competency education movement face?

Although the paper focuses primarily on competency education, we do not consider it a complete solution. Rather, we view it as one important part of a broader vision of education reform that places students at the center of their learning. In 2010, Jobs for the Future launched the Students at the Center initiative, supported by the Nellie Mae Education Foundation, to help inform growing interest in student-centered approaches with the best available research from the cognitive and learning sciences.[5] In a series of commissioned papers and a 2013 book published by Harvard Education Press, we present evidence and arguments concluding that students are more engaged, more motivated, and achieve better learning outcomes under four key conditions: education is personalized to their needs; they can advance upon mastery of clear learning targets; they have a range of learning opportunities in and out of school; and they have voice, choice, and agency in their learning experiences. The following investigation shines light on the opportunities and challenges involved in combining two of these tenets—competency education and personalization. Based on past research and early results, we are hopeful that many schools and systems embracing this combination of approaches will also pay attention to the other two aspects of student-centered learning and, consequently, see better results for all students.

As we grapple with the greatest challenge of our current era—preparing all students from all backgrounds for college and careers—many people are taking a hard look at our hundred-year-old assumptions about the best ways to organize K-12 education, particularly at the high school level.

THE PRESENT: COMPETENCY EDUCATION IN THE CURRENT CONTEXT

Although rich in historical precedent, today's competency education is an emerging field in which various implementers define their models somewhat differently and maybe even use different names, calling their programs "mastery based" or "proficiency based." Some skeptics question whether it is fair to characterize competency education as a coherent movement at all. While any attempt to define an evolving field is destined to be incomplete, it is important for the purposes of this paper to describe the major elements of competency education in play today.

A Definition, Under Construction

Many educators and researchers now consider competency-based models as existing on various axes of time, place, and personalization. For example, the purest definition of a competency-based use of time may be for every student to advance on an individual path based solely on mastery. However, recognizing the potential administrative, learning, and social drawbacks, not all schools adopting competency-based approaches do this. In practice, different schools with different populations and priorities have developed distinct versions. Some competency education models "value group learning and a sense of classroom community as much as purely individualized progression" (Priest, Rudenstine, & Weisstein 2012, p. v). Others emphasize flexible schedules or project-based learning. Given the relatively young nature of the field, we do not yet have the data to pinpoint exactly where along the various continua of path, pace, time, and place the most effective learning outcomes occur (Calkins 2014).

Despite the differences among models, certain characteristics are fundamental. For the purposes of this investigation, we first suggest features that are core to any competency-based model. Given our interest in promoting rigorous student-centered approaches that lead to better college, career, and civic outcomes, we next identify the key elements in a personalized version of competency education that align with our findings in research from the cognitive and learning sciences.

Distinguishing Among Similar Terms[6]

Competency education = Competency-based = Mastery-based = Proficiency-based ≠ Standards-based or Outcomes-based

This paper primarily uses the term "competency education." We consider it synonymous with "competency-based," "mastery-based," and "proficiency-based" education, referring to educational approaches that prioritize the mastery of learning objectives regardless of how long it takes.

We distinguish these terms from "standards-based" or "outcomes-based" approaches, which also emphasize mastery of learning objectives, but tend to judge mastery differently. For the most part, this second set of descriptors are applied to systems in which performance is translated back into grades or numeric averages and remains coupled with time-based accountability.

We recognize that some researchers draw even more nuanced distinctions among these various terms; while some practitioners may call their school standards-based when its overall elements may be closer to what we would consider competency-based. While we cannot resolve these issues here, it is our goal to be clear and consistent in our use of the terms and concepts we hold critical to the endeavor.

CORE ELEMENTS OF COMPETENCY EDUCATION

At its core, competency education has three basic elements, all of which were also part of older proficiency-based educational models:

1. **Mastery:** Students advance to the next level, course, or grade based on demonstration of skills and content knowledge as outlined in clear, measurable learning objectives that hold all to the same high academic standards.
2. **Pacing:** Students progress at different rates in different areas, rather than on a teacher-driven, class-wide schedule. Students who do not demonstrate mastery of a competency on the first attempt continue learning and have multiple opportunities to try again.
3. **Instruction:** Students receive customized supports to match their individual learning needs to keep them learning increasingly challenging material in a developmentally appropriate and motivating manner—and to ensure that those struggling in any area will be able to reach proficiency.

ELEMENTS OF PERSONALIZED COMPETENCY-BASED EDUCATION

Today's competency education models frequently include several other elements, often incorporating high degrees of personalization, to foster engagement, motivation, and responsibility for one's own learning. Personalized approaches to competency education include some or all of the following elements:

- **Competencies:** Learning objectives reflect research on what students need to know, and be able to do and apply for college, career, and civic success, including cognitive, metacognitive, non-cognitive, and interpersonal skills.
- **Assessment:** Multiple measures are used to determine mastery, and formative assessments play a particularly important role in instruction. Students receive immediate feedback about their progress toward specific competencies, and return to difficult concepts and skills until they can demonstrate proficiency.
- **Time:** Flexible uses of time encourage learning experiences outside of the traditional school day and year, and in a variety of formal and informal settings.
- **Agency:** Learners have opportunities to exercise choice in how they engage with core concepts and demonstrate core competencies.
- **Technology:** Schools and students use technological tools in service of flexible and engaging instruction and to ease implementation challenges. Software can support the tracking of demonstrations of competency. It also may provide recommendations for learning experiences, based on student progress data.
- **Culture:** School leaders and teachers foster an education environment that includes high expectations, transparency of learning objectives and assessment, collaborative learning and leadership, continuous improvement, and opportunities for students to learn meaningfully with peers and form relationships with supportive adults in order to maximize motivation, engagement, and achievement.

Distinguishing Among Similar Terms[7]

Individualized = Customized ≠ Personalized

Creating a consistent language for any emerging field can be tricky. For this paper, we use individualized and customized synonymously, to refer to teacher-led instruction that is designed to the meet the unique learning needs of each student.

We distinguish both of these terms from personalized, which we use to describe broader educational approaches that connect learning with the interests, talents, experiences, and aspirations of each student and that involve the active participation of each student in the design of their learning.

We recognize that some researchers draw even more nuanced distinctions among these various terms; and the very meaning of personalization is in flux. While we cannot resolve these issues here, it is our goal to be clear and consistent in our use of the terms and concepts we hold critical to the endeavor.

An Illustration of the Core Elements of Competency Education

For over 17 years, Boston Day and Evening Academy has served a population of young people often left behind: those who are off track to high school graduation or who have dropped out altogether. From day one, BDEA has used a competency-based approach as a way to accelerate student progress toward graduation and postsecondary success, as well as foster deep learning and critical thinking. Below is a table illustrating how they define and measure competency. Massachusetts, a Common Core state in the PARCC consortium, has set out numerous standards a student must meet in content areas, such as the English Language Arts (ELA) for example, in order to be considered ready to graduate. BDEA takes those standards and breaks them into core competencies, often slightly rephrased in more concise and accessible language for their faculty and students. Each competency has several benchmarks progressing from basic skills to more complex reasoning.

A student achieves *mastery* in each of these areas by demonstrating "understanding and application of specific skills and content independently, multiple times, and using the correct vocabulary" (Wolfe 2012, p. 12). A student will not receive credit for the full competency until she has demonstrated mastery of all the benchmarks. However, she may enter the school already ready to demonstrate mastery in all the "1's" (Benchmarks column); she may take two weeks to breeze through 2c; and she may find it makes sense to work on 2b and 3a at the same time; thus finding the right pace for her learning needs. Her ELA teacher and her Advisor meet with her regularly during a regular class period or in the course of frequent reviews of her Individualized Learning Plan (ILP). These ILP checks keep her progressing at an appropriate pace to move her through to the higher level benchmarks. These meetings and others with the Student Support Team further ensure she has the individualized instruction she needs such as proper tutoring supports, opportunities for structured collaborative group work, and time to revise so that she can meet her benchmarks.

STATE STANDARD	COMPETENCY	BENCHMARKS
DEFINITION: The competency as expressed in the state standards for learning	**DEFINITION:** The competency as expressed in the state standards for learning	**DEFINITION:** The building block skills students need to acquire and demonstrate to master the competency. Numbered in the order in which a student would most likely develop the skills.
EXAMPLE: Analyze the meaning of literary texts by drawing on knowledge of literary concepts and genres.	**EXAMPLE:** Identify and analyze different literary elements and genres.	**EXAMPLES:** 1a. Identifies at least three different literary forms. 1b. Identifies and understands the basic literary elements of a text (plot, setting, character, conflict, mood, tone). 2a. Identifies the characteristics of at least three genres. 2b. Identifies themes and analyzes their development over the course of a text. 2c. Uses textual evidence to identify and analyze figurative language and/or other higher-level literary devices. 3a. Identifies and analyzes the connection of the text's theme(s) to an essential question.

Source: Wolfe 2012, BDEA

What Is Driving Interest and Investment in Competency Education Today?

The growing interest in competency education has generated increasing investments in competency-based models. In the past decade, 42 states have granted public schools the flexibility to incorporate competency education policies, and a few states have moved beyond experimentation (Carnegie Foundation 2014). Proponents are implementing a range of programs, from competency-based options within a school to district-wide efforts. New Hampshire has gone the farthest, launching a statewide competency-based system in 2008 that requires all high schools to award credit based on student mastery of material rather than time spent in class (Freeland 2014). Maine is mandating that districts offer a diploma based on demonstration of proficiency beginning in 2018.

At latest count, 29 states allow each district to choose how to award credit—using seat time or an alternative, such as proficiency or competency. *(See box on state policies.)* Some of these states are actively encouraging schools to adopt competency-based pathways. Iowa recently selected 10 districts to develop pilot programs and will follow their progress as a task force studies broader implementation (Iowa DOE 2013).

The federal government also has encouraged competency education, making it a feature of the Race to the Top competition and holding it up as a promising strategy to produce more and better-prepared graduates (DOE 2012a). Several major educational foundations are supporting this movement, funding expansion and research (including this paper). While most schools are too new to have a long track record, early adopters are showing some signs of success.[8]

Today's demand for competency-based reform efforts can be traced to a confluence of several drivers of change. First and foremost, the interest is fueled by the expanding global economy, which has transformed the U.S. labor market over the past decade. The increased importance of college and career readiness for all students is broadly accepted. The recognition that most jobs soon will require postsecondary credentials has raised the stakes; graduating from high school is no guarantee of finding any job, let alone a job that pays enough to support a family or leads to a career that does.

State Policies on Seat Time and Course Credits

All 50 states and the District of Columbia have rules about how districts should award high school course credit:

- **1 state** (New Hampshire) eliminated seat time, or the Carnegie Unit, from its regulations and as of 2008 requires all high schools to award credit based on student mastery of material rather than time spent in class.
- **1 state** (Maine) will require districts to offer a diploma based on demonstration of proficiency beginning in 2018.
- **40 states** allow districts to define credit more flexibly than the seat time standard
- **29 states** permit districts to define credits according to their choice, using seat time or another measure, such as proficiency or competency.
- **4 states** allow districts to apply for waivers to use measures other than seat time to award credit for core courses.
- **7 states** give districts some flexibility, but it is limited to special circumstances, such as credit recovery programs or out-of-school learning, and may require approval from the state.
- **8 states** and the District of Columbia do not give districts any flexibility; districts must use time-based credits.

Source: Carnegie Foundation for the Advancement of Teaching 2014; Stump and Silvernail 2014.

Determining how to help all students reach this goal has been the subject of intense debate. Two approaches to educational reform that have often been at odds—the standards movement and the personalization movement—are now coming together and raising interest in competency education as a part of the solution. Competency-based approaches provide reconciliation by accepting the central importance of clearly defined college- and career-ready proficiency standards for all and offering strategies to reach these standards through meeting the individual needs and interests of each learner. The ongoing development of advanced technological tools finally makes it feasible to implement on a large scale.

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The Standards Movement

The standards movement, which grew out of the 1983 publication of *A Nation At Risk,* has gone through several phases since its inception. Most states developed their own standards and standards-based assessments in the 1980s and 1990s. Some experimented with innovative performance-based assessments that would be "tests worth teaching to." But these efforts were eventually dropped in favor of more cost-effective multiple-choice assessments that most states were using.

In 2002, the No Child Left Behind law raised the stakes and led to growing critiques of what was being done in the name of standards-based reform. Critics pointed out that the rigor of the standards and assessments varied dramatically across states, as did the bar for proficiency. Analyses found that many states were setting low to middling expectations—particularly in early grades that required high-stakes tests—as well as low bars for annual progress, in order to avoid sanctions (Adkins 2007; Carey 2007). In addition, some parents and teachers expressed concern about teachers spending too much time on test prep and narrowing the curriculum to teach to the test.

With increasing pressure to improve the inconsistent and low academic expectations that had taken hold across the country, political will grew once again for a set of nationally recognized learning standards. In 2010, most states signed up to design common standards in English language arts and math—an effort led by membership organizations such as the Council of Chief State School Officers and the National Governors Association. The Common Core State Standards aim to align with college-ready expectations and the demands of the global economy. The federal Race to the Top competition encouraged and rewarded states that adopted the standards, and by mid-2011, almost every state had done so. Nearly all the states, likewise, are taking part in one of two consortia to design common assessments for the new standards and the more recent Next Generation Science Standards.[7]

Schools and districts that have implemented key components of competency education use the Common Core or other high-quality standards that emphasize higher-level concepts and deeper learning skills over basic skills and factual knowledge, as a basis to determine academic expectations in a course, subject area, or grade level (Great Schools Partnership 2014). Supporters of the Common Core within the competency-based education community say it will encourage consistency in developing, teaching to, and assessing competencies that are grounded in high-quality standards (Priest, Rudenstine, & Weisstein 2012). However, it is important to note that standards themselves do not define the level of performance required to show proficiency on learning goals. Each state is coming up with its own definition of proficiency and the minimum score a student must earn on state assessments in order to demonstrate it.

Personalization

Personalization and standards-based reform do not, on their face, seem to go together. In fact, as noted previously, the ways in which many schools responded to the first waves of the standards movement led to greater standardization and a narrowing of the curriculum. Some educators hold similar concerns about the Common Core. Increasingly, educational and state leaders see personalization as an antidote—essential to successfully implementing higher standards.

Adding higher standards to traditional education systems without personalizing instruction to help students attain them is likely to continue to produce inequity and large groups of underprepared graduates (Farrington & Small 2008). Faced with the need to help all students to meet

these more ambitious standards, educators and state leaders are increasingly seeing the need to use more personalized methods of teaching, as well as to use time more flexibly, both within and beyond the standard school day and year—essentially student-centered learning.

Students (and their parents) want an interactive, flexible, and engaging, and motivational educational experience that meets their needs and builds on their interests. That is the goal of personalization: Students' learning experiences—what they learn, and how, when, and where they learn it—are tailored to their individual developmental needs, skills, and interests. Although where, how, and when they learn might vary according to their needs, in a fully personalized system, students also develop deep connections to each other and their teachers and other adults. Many applications of personalized learning emphasize the use of technology to enable the level of customization at scale (adapted from Gates Foundation 2010, Benson 2013).

Given what we know about learning differences and inequitable learning progressions, it is nearly impossible to imagine combining personalization and rigorous standards for all students without relaxing the drumbeat of time through a more competency-based system.

The growing interest in competency education is related to the advancement of technologies that make personalization more feasible—both in terms of meeting the interests and needs of students and providing an individualized learning management system for teachers.

Technology

Finally, the growing interest in competency education is related to the advancement of technologies that make personalization more feasible—both in terms of meeting the interests and needs of students and providing an individualized learning management system for teachers. In fact, some reformers advance an efficiency argument and see the potential for new educational technologies as the key to delivering individualized education in a cost-effective way. Students in technology-driven competency-based models primarily work independently, guided by an online curriculum offering standardized learning progressions with aligned computerized assessments. As the student moves through lessons and assignments, the learning management system also may suggest interventions or additional resources.

However, as we discuss in detail in the final section, "The Promise," these types of online competency-based models tend to overemphasize the use of technology and individualization, often to the detriment of other key learning elements of a personalized competency-based approach such as collaboration, teacher interaction, and ownership of their learning trajectory (DOE 2010).

Nevertheless, without the kinds of technology available today, it would be nearly impossible to achieve the level of learning customization, varied and engaging experiences and lessons, and ability to assess and track the numbers of students necessary to realize personalized competency education at scale.

In many ways, competency education is a sweeping reform, going well beyond the standards movement, which did not try to change use of time in school or to challenge the fundamental ways in which public education is organized. However, as we discuss in the next section on historical attempts to measure outcomes in school, it is important to remember that many of the ideas that undergird competency-based education are not new. Yet, whether because of technical, adaptive, or political challenges (or all three), competency education has stayed on the sidelines, never becoming widely adopted or challenging the fundamental construct of time as the unit of schooling in the past. As we consider the opportunity to spread personalized competency education, it is important to understand the challenges that have hampered its growth in the past, and its potential to yield improved outcomes for students—particularly those who have long been underserved by public education.

THE PAST: THE ROOTS OF COMPETENCY EDUCATION

Despite myriad efforts to improve public secondary education, the fundamental structure of high school has stayed the same for more than a century: four years of coursework culminating in graduation for students who earn passing grades. Yet efforts to ensure that schooling emphasizes outcomes (learning) more than inputs (class time) also have deep historical roots.

As the twentieth century dawned, the benefits of the turn-of-the-century standardization in high schools were readily apparent: efficiency in serving the expanding and increasingly diverse student population, ease of record keeping, a rational method of organizing and managing large schools, and uniform university admissions standards. However, to educational progressives, the drawbacks were equally evident: the tamping down of the more individualized, self-paced learning they promoted.

In the early 1900s, John Dewey, whose ideas were central to the progressive movement in education, challenged traditional teaching models that relied on rote learning. Dewey wrote extensively about the importance of allowing students to learn by doing and of relating the curriculum to their interests and experiences. Around that time, and as a result of Dewey's influence, progressive educators were placing increased emphasis on whole-child development and real-world engagement, in addition to algorithms and facts.

One of the first significant experiments in mastery-based learning began in 1919 under Superintendent Carleton Washburne in the school district of Winnetka, Illinois, a village outside of Chicago settled by well-educated, reform-minded intellectuals from New England. Washburne had studied under Frederic Burk, the first president of the San Francisco State Normal School, a teacher-training college that became known for its individual instruction techniques. Burk developed self-instruction booklets—later called "workbooks"—to allow students to progress at their own pace (Graham 2005). Washburne took these ideas and developed "The Winnetka Plan" to emphasize individualized learning in elementary school. The school day was divided so that for at least half of the day students progressed at their own rate in "common essentials," such as reading, writing, and counting, and needed to master the material in each "work unit" to progress to the next level (Corcoran 1927). The rest of the day was devoted to creative group activities in social studies, literature, and the arts. Despite its self-paced component, it is notable that Washburne did not fully disrupt the time-based structure upon which American schooling had been built. Students who had not mastered the objectives in those work units by the end of the school year still advanced to the next grade.

However, the program was criticized for not going far enough: while instruction was individualized in that students worked independently on assigned tasks at their own pace, students' individual interests were not really taken into consideration nor did students guide their own instruction (Kliebard 2004; Kilpatrick 1925). The Winnetka Plan also heavily emphasized specific skill attainment in its common essentials in a mechanical approach that did not have any real connection to the creative group activities of the program (Corcoran 1972; Kilpatrick 1925). Despite these criticisms, the Winnetka Plan helped introduce self-paced instruction and was one of the first models to emphasize ensuring that all students master common skills needed for success. Important not only as an early precursor to the mastery-based movement, comparative studies later showed that students at least did not fare worse than in the so-called Normal schools (Tyler 1949).

Since then, several influential educators have championed more competency-based and student-centered approaches to teaching and learning that may have been a critique or expansion of the Winnetka Plan. In 1949, Ralph W. Tyler presented the concept that curriculum should be dynamic, always under evaluation and revision, rather than a static, set program. His work challenged the orthodoxy of the time by describing learning as taking place through the actions

of the student, rather than the teacher. Tyler advocated for developing clearly stated objectives that were to be "a compromise" between the characteristics and needs of the students and the basic skills and knowledge or common essentials that had typically driven curriculum and instruction (Tyler 1949). Thus, Tyler set the course for objectives-based education that drew not only on common skills and content, but also the needs and interests of students. Tyler went on to influence national education policy and assessment throughout the 1950s and 1960s, and his work made major contributions to curriculum and instruction that continue to this day (Tyler 1949; Nowakowski 1983).

Each of these major elements in Tyler's reforms—greater focus on students' needs and interests, dynamic curriculum, and clear objectives—are direct influences on today's competency-based designs. Another major competency-based influence in developing the way that educators thought about instruction was John Carroll, whose 1963 "model of school learning" argued that aptitude is measured by the amount of time a student needs to master a given task or concept. In contrast with perspectives that put the primary focus on innate intelligence, Carroll's model promoted the idea that academic achievement was a function of the appropriate opportunity—or time available—to learn, combined with high-quality instruction and student perseverance (Carroll 1963; Carroll 1989). Carroll's conceptual model provided the theoretical basis for mastery learning (Bloom 1968; Block & Burns 1976). Another central idea in Carroll's learning theory—that not all students achieve mastery at the same time—is also a central element of competency-based education.

In the late 1960s and early 1970s, the concept of the "open classroom," or "school without walls," was also gaining popularity. With roots in the one-room schoolhouse of early America and in a British approach called "informal education," the open classroom mirrored the era's social, political, and cultural challenges to authority and conformity (Cuban 2004). These student-centered programs typically offered no whole-class instruction, detailed curriculum, or uniform learning standards. Instead, children explored books, activities, and social interaction at "interest centers," learning at their own pace with the guidance of teachers. While soon abandoned due to the conservative backlash against the cultural and political changes that created them (Cuban 2004), open classrooms shared the ideal that students learn best when they are directing their own learning. In practice, results were mostly mixed (Horwitz 1979). Research on open classrooms was often complicated due to the range of how open classroom education was implemented and defined (Horwitz 1979; Reynolds, Hayes, & Donny 1974). Many also questioned whether standardized assessments provided a valid measure for students not in traditional classrooms (Horwitz 1979; Wright 1975). These issues are similar to some of the assessment and accountability challenges current competency education efforts try to address. Competency education borrows much of the theory about increased time and student-centered approaches from the open classroom ideals, while simultaneously placing far greater emphasis on achieving mastery of clearly defined and rigorous knowledge and skills.

» Competency education borrows much of the theory about increased time and student-centered approaches from the open classroom ideals, while simultaneously placing far greater emphasis on achieving mastery of clearly defined and rigorous knowledge and skills.

HISTORY TIMELINE: FROM STANDARDIZATION TO COMPETENCY EDUCATION

DATE	DEVELOPMENT
Late 1800s	Booming enrollment leads to **standardization of secondary education. Credits awarded based on time** spent in class (seat time) and any passing grade.
Early 1900s	John Dewey and Progressive educators challenge traditional teaching methods that relied on rote learning. Instead they emphasize **whole-child development and real-world engagement**.
1919	Carleton Washburne launches "The Winnetka Plan," **one of the first major experiments in self-paced learning** and a precursor to the mastery-based movement.
1949	Ralph Tyler advocates for a **dynamic school curriculum, with clear objectives** drawing on common skills and content—and the **needs and interests of students**.
1963	John Carroll presents ideas that **achievement is not a function of innate ability, but of time available to learn** combined with high-quality instruction, student perseverance.
Late 1960s	"Open classroom" models focus on **"learning by doing," exploring "interest centers" at a student's own pace, with teacher guidance**.
1968	Benjamin Bloom publishes "Learning for Mastery," which lays a foundation for **organizing schools to allow individual students the time needed to meet objective learning goals**.
1970s	Bloom's strategy for mastery learning emphasizes **group-based instruction, interim assessment, and individualized "corrective activities,"** followed by a second assessment to evaluate progress. Students do not move ahead without peers.
1970s	Fred S. Keller proposes far more individually paced mastery-based approach. The Personalized System of Instruction divides material into self-contained modules, with specific learning objectives. **Students advance only after mastery of previous module.**
1970s-1980s	**Heyday of mastery learning.** Extensive research finds impressive learning gains. Early criticisms included a lack of commonly recognized, highly specific educational goals, and of diagnostic, assessment, and progress tracking tools.
1980s-1990s	Beginning of "standards movement," which sets what students should know and be able to do as they move through school and assesses their achievement in certain grade levels. **First time states require common educational goals.**
1994	Chugach, Alaska, launches performance-based learning system that is **forerunner of today's competency education models**. Achievement improves dramatically. Similar models evolve in individual schools around the country.
2008	New Hampshire is **first to launch statewide competency-based system** that requires high schools to award credit based on mastery of material rather than seat time and passing grades.
2014 and beyond	Maine will **require districts to offer a diploma based on demonstration of proficiency by 2018**. In 29 other states, districts may choose how to award credit, using seat time or an alternative such as competency or proficiency.

Mastery Learning

The basis for today's competency education movement gained momentum in the 1960s in the form of "mastery learning," with a renewed emphasis on teacher training that would allow students to master material at their own pace. In 1968, Benjamin Bloom published his seminal theoretical piece "Learning for Mastery," which challenged the prevailing notion that one-third of students will fail, an expectation he called "wasteful and destructive" (Bloom 1968, p. 1). Influenced by the work of John Carroll, he hypothesized that 95 percent of students can master what schools have to teach them if given appropriate time, feedback, and instructional methods. "Learning for Mastery" laid the foundation for how schools might organize to ensure more students reach those higher levels of learning.

The 1970s saw the rise of several distinct types of student-paced instructional models, including Bloom's strategy for mastery learning. His group-based approach suggested ways for teachers to offer many of the positive aspects of one-to-one, individualized tutoring in a classroom setting (Bloom 1968; Bloom 1971). Under Bloom's model, the teacher delivers initial instruction to the class as a group, then tests each student's learning through formative assessment, which gives them individual feedback on what they have learned well and on what they need additional work. The formative assessments are paired with "corrective activities" that can be individualized for students and are followed by a second formative assessment within one or two class periods. This second assessment demonstrates whether the correctives were helpful and can serve as a powerful motivator by offering students a second chance to succeed. Students who master the material on the first try engage in enrichment activities to broaden their learning, but typically do not move ahead to the next unit without the rest of the class (Guskey 2010).

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At roughly the same time, Fred S. Keller proposed a far more individually paced mastery-based approach. The Keller Plan, or Personalized System of Instruction, sought to create a self-paced educational program by dividing the unit material into self-contained modules, with clear, specific learning objectives. Students advance to new material only after achieving mastery of the previous module. Lectures and demonstrations are used to motivate students rather than as the primary vehicle of delivering information. Teachers take on a supervisory role. They develop curriculum, plan instruction, create exams, evaluate student progress, and supervise proctors, who work closely with students. Proctors administer and immediately score tests, then provide feedback and tutor students to fill skill gaps (Keller 1968). Keller's Personalized System of Instruction was more commonly used in higher education settings, likely because it was developed in postsecondary classrooms (Keller 1968) and this individual-pace approach to instruction was difficult to adapt to typical elementary and secondary settings where teachers had classrooms of 25 or more students (Guskey & Pigott 1988).

Positive results and two potential models (Bloom and Keller's) resulted in the 1970s and 1980s being a heyday for this type of mastery learning. Extensive research summarized in several major meta-analyses found impressive gains in student learning outcomes, as well as in students' attitudes toward learning and in their abilities to learn (Guskey & Gates 1986; Guskey & Pigott 1988). An

analysis in 1990 of 108 controlled evaluations concluded that mastery learning not only has positive effects on achievement, but that the effects are stronger on the weaker students in a class (Kulik, Kulik, & Bangert-Drowns 1990a). Although one review found no effect on student achievement (Slavin 1987), the study methods were later questioned and the consistently positive impact of mastery learning has been upheld (Kulik, Kulik, & Bangert-Drowns 1990b; Guskey & Pigott 1988).

Despite strong evidence of its value, widespread adoption of mastery learning has faced significant obstacles. Criticisms voiced in the 1970s included a lack of commonly recognized, highly specific educational goals; scarcity of diagnostic, assessment, and progress tracking tools; lack of high-quality remediation models for students who advance more slowly; and lack of teacher time, energy, and skills to apply the model effectively (Horton 1979). However, these were offered as possible problems, with no evidence offered to support these contentions at that time or since. The combination of positive evidence coupled with significant criticism suggests that the mastery movement largely faced a political problem, not an instructional or outcomes-based one.

In many respects, the current competency education movement seeks to pick up where the mastery learning movement failed to take hold. A more recent critique suggests that the potential impacts of mastery learning suffered from an over-emphasis on marching through sub-skills with little or no attention to the bigger concepts (Conley, forthcoming). Today's competency-based proponents maintain a laser-like focus on college and career-ready standards via the Common Core State Standards and other rigorous state standards. And as noted above, many competency education models simultaneously emphasize personalization—bolstered by recent findings in brain research, learning, and motivation theory.

Modern Forerunners: From Chugach to Boston

The first modern model of competency education was created far from the big cities that are the center of most educational reform efforts today.

Twenty years ago, the impoverished school district of Chugach, Alaska, which spreads over 22,000 square miles near Anchorage, moved to a performance-based learning system as a strategy to combat low achievement. Ninety percent of the district's 214 students could not read at grade level. The district replaced credit hours and grade levels with 10 performance levels, and created, implemented, and fine-tuned thematic units, tools, assessments and instructional approaches to match. Within 5 years, the district saw impressive gains in student achievement. Average ELA scores on the California Achievement Test soared from the bottom quartile to the 72nd percentile, and participation in college entrance exams increased from 0 to 70 percent. Teacher retention rates also rose (NIST 2002).

Chugach's success led to the 2002 creation of the Re-Inventing Schools Coalition, which refined and formalized the model, a competency-based approach now used in 16 districts and schools nationwide (Worthen & Pace 2014; DOE 2012b).

The same year, Oregon became the first state to allow students to earn proficiency-based credits, primarily for out-of-class learning experiences. The state has gradually expanded proficiency-based options since then, running pilot programs in 7 districts and later permitting districts to offer proficiency-based diplomas. (Oregon DOE 2011).

Before other states followed suit, individual schools—often alternative schools—started experimenting with competency-based programs. Boston Day and Evening Academy, which was created in 1995 as a night school for former dropouts, was one of the early adopters (*see more on BDEA in box on page 5*). Diploma Plus, now a national network of alternative schools, also started in Boston in 1996 and moved to a competency-based model a few years later. BDEA, Diploma Plus schools, and others have won flexibility from their districts to meet the needs of their students in ways that large, comprehensive schools could not and have become leaders in the competency education movement (Sturgis & Patrick 2010).

THE RESEARCH: IMPLICATIONS FOR COMPETENCY EDUCATION

As noted in the introduction, we view competency education as one important part of a broader vision of education reform that places students at the center of learning. We turn now from a look back at history to a look forward—at how recent research into student-centered learning approaches can inform efforts to implement competency education. In this section, we highlight relevant findings on learning, motivation, peer interactions, and assessment from our student-centered learning series and discuss implications for expansion of personalized competency education. Our intent is to call attention to lessons learned about effective educational strategies and show how they can be integrated into competency-based models that result in deeper learning outcomes for all students.

The Learning Brain[9]

Recent advances in neuroscience research have enabled students, educators, and parents to reconsider their notions about human intelligence, particularly the individual potential to learn. For much of the 20th century, the prevailing belief was that general intelligence was innate, or fixed at birth, as was the aptitude to learn in the academic disciplines. However, the field of neuroscience has shown definitively that the brain is highly adaptive, a property called "plasticity." It is the interplay of genetics and the environment that sculpts the brain's architecture and shapes individual abilities. Students' brains continuously adapt to their experiences at school, home, workplaces, and other settings.

This means that, under favorable conditions, people can grow "smarter"—that is, raise their skill levels, even overcoming many learning challenges. As students learn, these experiences activate connections among neurons in certain areas of the brain. Over time, the more active connections are strengthened, becoming more effective, while the less active connections are weakened or eliminated. This research reinforces a basic principle of competency education—that students at all levels have the capacity to master a common set of core college- and career-ready skills and knowledge. Furthermore, competency-based strategies can offer the flexibility to provide meaningful educational experiences and ongoing guidance to support each individual as they follow their own path to mastery.

THE COGNITIVE SCIENCES	IMPLICATIONS FOR PERSONALIZED COMPETENCY EDUCATION
The brain is continually changing as learning experiences shape its architecture. Individual abilities are not fixed at birth, but rather continuously developing.	Provide meaningful and flexible learning experiences, with ongoing guidance, that enable students at all levels to build toward mastery of a common set of core college- and career-ready skills and knowledge.
The brain's active engagement is a prerequisite for learning. Passive experiences do not trigger the neurological changes that underlie learning.	Prioritize active, engaging learning experiences that are relevant to students' lives and goals. Include experiences that take place outside of school, and beyond the traditional school day.
Each student has a complex and dynamic profile of strengths and challenges, and ability in one area does not predict ability in another. Individuals learn most effectively through experiences tailored to their needs and interests.	Customize instruction, pacing, and supports to accommodate individual differences. Students can move ahead in some academic areas, while receiving extra help in others as needed.

ACTIVE AND ENGAGING EXPERIENCES

According to neuroscience research, learning is most likely to occur when experiences are active rather than passive, and when the learner is actively engaged, not a passive recipient of information. Today's scientific advancements allow us to confirm what 100 years ago John Dewey was describing from a psychological perspective: The brain requires active engagement to trigger the neurological changes that underlie learning. This research is consistent with the core principle of competency-based education—that students should earn credit for their mastery of specified knowledge and skills, rather than for spending a prescribed amount of time in a classroom and earning any passing grade. As with all student-centered approaches to learning, competency education at its best creates opportunities for students to engage in learning experiences that are relevant to their lives and goals. These do not only occur inside the school building during standard school hours. Learners are actively engaged at many other times and in many other places—after school, on weekends, and during the summer, when students participate in community activities, internships, and work.

INDIVIDUAL DIFFERENCES

As every teacher knows, students have a mind-boggling array of interests and abilities. Instructional techniques that work well for some students leave others lost. Research on the brain supports a nuanced understanding of individual differences. Not only does each classroom contain wide variations in students, but each student possess a complex and dynamic profile of strengths and challenges. One student may find mathematics easy, but wrestle with writing. Another may face difficulty within a single domain—perhaps grasping graphs, but struggling with statistics.

Many teaching methods fail to accommodate these individual differences, as do standardized curricula, pacing, and assessments. Research on language learning, literacy, and mathematics suggests that everyone learns best through experiences tailored to their needs and interests. In a personalized implementation of competency education, instruction and pacing in each subject, and ideally curriculum and assessment, are customized to allow students to follow different pathways toward the same core knowledge and skills. Students can advance in some areas, while receiving extra help in others. Without this flexibility of time, a student's difficulties in one domain may unnecessarily interfere with learning in another.

Motivation and Learning[10]

Research shows that achievement and motivation are inextricably linked in a complex web of causality. Just as each student has a unique mix of abilities and interests, each student is also motivated in different ways at different times. Some enter school eager to learn; others need to be engaged in a particular subject to be motivated to explore it. Research indicates that systems of rewards and punishments and certain forms of praise are limited in their capacity to produce long-term positive changes in achievement motivation. However, when students are provided with opportunities for greater autonomy, agency, voice, choice, and challenge, especially within learning environments that encourage intellectual risk-taking and peer collaboration, both engagement and motivation can

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MOTIVATION THEORY	IMPLICATIONS FOR PERSONALIZED COMPETENCY EDUCATION
Every student is motivated in different ways at different times. To capitalize on individual motivations and meet individual needs, customized approaches that differentiate instruction tend to work far better than uniform techniques for the so-called "average" student.	Customize instruction and pacing to each individual's interests, motivations, content needs, and learning style. These should include internships and other out-of-school experiences that allow students to explore their interests and develop their talents. Students are assured individualized support and scaffolding to keep them progressing appropriately.
Both intelligence and motivation are malleable. Helping students understand that they can master concepts, acquire new skills, and improve existing skills through the application of effort, regardless of past achievement, increases their motivation to try.	Provide multiple opportunities for students to demonstrate mastery of a competency—and its component skills and knowledge—and to move at different rates in different areas. Students see effort rewarded as well as mastery.
Providing opportunities for choice and control are potent strategies for increasing achievement. Students are likely to be more motivated and engaged in an activity when they feel a sense of agency—that they have a voice in how it is conducted and can affect how it concludes.	Help students feel a sense of control over their learning by allowing each to follow an individualized, transparent path to proficiency. Knowing in advance what outcomes are expected encourages students to become active agents of their own learning.
Each student has a complex and dynamic profile of strengths and challenges, and ability in one area does not predict ability in another. Individuals learn most effectively through experiences tailored to their needs and interests.	Customize instruction, pacing, and supports to accommodate individual differences. Students can move ahead in some academic areas, while receiving extra help in others.

soar (Toshalis forthcoming). To help each student meet his or her potential, it is essential to integrate these findings into competency-based classrooms and to allow students to choose—and shape—learning experiences outside of school.

Moreover, personalized approaches tend to work far better than teaching to the mythical average student. This is another central tenet of competency education—individualizing instruction, pacing, supports, and determination of mastery. "[K]nowing the individual student well enough to see how the web of causality functions to motivate him to achieve is crucial to teaching that student well" (Toshalis & Nakkula 2012, p. 3). Traditional classroom culture, in which a teacher attempts to guide every student to achieve common skills in the same time frame, is not designed with individual motivations in mind. Research also points to the fact that some students learn even the more basic skills more readily in non-school settings, such as youth-development-focused afterschool programs (Gutierrez & Irving 2013).

THE MALLEABILITY OF MOTIVATION

Like general intelligence, motivation is not fixed, but highly malleable and responsive to the environment, according to the conclusions of many studies. As Stanford psychologist Carol Dweck and others have shown, a student's beliefs about his or her potential to learn can have a powerful impact on actual learning. Students who believe that intelligence is a fixed entity are more likely to attribute difficulty with a particular subject to evidence of lack of intelligence in that area, feel stuck, and give up. Such views continue to bolster common self-critical statements, such as "I'm not good at math." Helping students to recognize that they can master new knowledge and improve existing skills by exerting effort—which Dweck calls a "growth mindset"—increases their motivation to try. It is effort and support, not innate ability or past achievement, which matters most. Students who believe this are likely to be more motivated to "attempt difficult academic tasks and persist despite setbacks, confusion, and even failure" (Toshalis & Nakkula 2012, p. 6, citing Dweck 1999; Grant & Dweck 2003; Kamins & Dweck 1999; Mangels et al. 2006).

Competency education at its best is well aligned with Dweck's mindset theory, as it provides multiple opportunities for students to demonstrate mastery of a competency and its component skills. Failure is not an option. Students may move at different rates in different areas, but eventually they will see their efforts pay off. Rather than waiting until the end of a unit, taking the same summative test at the same time as all of their peers, and earning a "C" or "D" (meaning they move to the next unit even though they understand only a small portion of the previous material and their self-confidence may be faltering), students can get feedback and try, try again until they master the material. Furthermore, motivation can spread across disciplines. "For example, students who are motivated in a particular class because they believe they are successful in it may then use these beliefs to orient themselves to learn in a different class" (Toshalis & Nakkula 2013, p. 178).

In these ways, competency education may be viewed as an antidote to the still-common practice of tracking, or sorting "unmotivated" or "less academically proficient" students into separate classes from higher-achieving peers. Tracking can lead "students to take on labels—both in their own minds as well as in the minds of their teachers—that are usually associated with the pace of learning (such as the 'slow' or 'fast' learners). Because of this, we end up confusing students' pace of learning with their capacity to learn" (Muir 2007, citing Wheelock). Looking at students' achievement levels at any given time as a predictor of "their achievement in the future becomes a self-fulfilling prophecy" (Muir 2007, citing Wheelock).

When schools make "ability differences" salient in learning environments, students may use a variety of techniques to void the implication that they are "slow" or "stupid." They may self-handicap, use avoidance behaviors, refrain from asking for help, disengage, distract others, and, in some cases, act out. Conversely, such resistant behaviors drop off when students are not labeled, but rather get the supports and challenges they need to learn and demonstrate new concepts and skills (Toshalis forthcoming). Personalized competency-based approaches attempt to provide exactly this kind of customized support while doing away with the need for labels.

STUDENT AGENCY

Among the most potent strategies for increasing achievement is providing opportunities for student choice and control in school. Research has shown repeatedly that the more educators foster this sense of individual agency, the more student motivation and engagement are likely to rise. Teaching practices that emphasize the delivery and regurgitation of content have also been shown to have the opposite effect, leading to greater student passivity and disengagement. Best practice applications of competency education offer the opportunity for students to co-construct their own path into and through transparent learning progressions to specific outcomes laid out in common standards. These progressions provide a clear roadmap of the trajectory from novice to proficiency to graduation. Such progressions allow students to see their educational path as it unfolds; understand what is expected of them and what is on the horizon; and begin to feel a sense of control over their learning.

Social Aspects of Learning

Anyone past the age of adolescence knows viscerally the powerful influence of peers—for better and for worse. Despite their pitfalls, peer relationships are essential to the ability of teenagers to develop a sense of identity and belonging and an understanding of the world. Research

SOCIAL ASPECTS OF LEARNING	IMPLICATIONS FOR PERSONALIZED COMPETENCY EDUCATION
Peer interactions are essential to adolescent identity development, sense of belonging, understanding of the world, and academic learning.	Include regular peer interaction and meaningful collaboration focused on positive and rigorous learning experiences.
Belonging to a "community of learners" can offer positive results for young people (particularly as studied in the field of mathematics).	Allow the flexibility for students to "think aloud" with one another, get feedback on their thinking, and build knowledge together.

from a variety of perspectives underscores the critical importance of peer interactions to learning, as well. Providing opportunities to collaborate meaningfully with peers is a key element of quality learner-centered education and many educators believe it is crucial for making the most of competency-based education, too.

A recent meta-analysis of 148 studies (representing more than eight decades of research on over 17,000 early adolescents from many different countries) reinforces the benefits of cooperative goal structures over competitive or individualistic goal structures in promoting both academic achievement and positive peer relationships. Cooperative goal structures require students to interact while working on academic assignments, "thus building relationships while making academic progress" (Roseth, Johnson, & Johnson 2008).

Strong examples of the benefits of building a community of learners come from studies of afterschool mathematics programs, as well. Classes that use small-group instruction have shown greater effects than those with whole-group instruction or a focus on one-on-one tutoring (Gutierrez & Irving 2013). A three-year study of black and Latino/a middle school students in an afterschool program identified some of the positive features: encouraging students to discuss their thinking, hearing the range of other people's perspectives, having their own thinking challenged, refining their thinking, expanding upon the arguments of others, and collaborating on problem solving (Mueller 2009; Mueller & Maher 2009).

A growing body of research supports the notion that students are more likely to persist, and to excel academically, when they feel a sense of belonging to an academic community. Such students are more invested in the learning process and have more positive attitudes toward school and classwork, as well as toward their teachers and their peers (Farrington et al. 2012). Though students in a competency-based school might be frequently regrouped to accommodate differences in learning pace, a thoughtfully designed, personalized system will explicitly call for the creation of consistent communities, too. These might take the form of advisory groups, extended learning opportunities outside of school, or age-based cohorts.

As the goal of high school education continues to shift from completion to college- and career-readiness, the importance of social, interpersonal, and collaborative skills continues to grow. One example: a 2006 survey of several hundred employers ranked "Teamwork/Collaboration" second overall in applied skills important for job success for new entrants to the workforce (Casner-Lotto, Barrington, & Wright 2006). In personalized competency-based systems, school-wide competencies include critical aspects of social learning, such as collaboration.

Assessment[11]

Traditional assessment systems presume that all students progress at the same pace. They require all students to demonstrate how much they have learned on a summative test at the end of major units, and at the end of each course. Letter or number grades rate their performance.

BALANCED SYSTEMS OF ASSESSMENT	IMPLICATIONS FOR PERSONALIZED COMPETENCY EDUCATION
Student assessments should be part of a balanced system of formative, interim, and summative assessments—both formal and informal.	Offer multiple measures of mastery, at individualized intervals, rather than performance on a single time-based test. More radical versions also allow students to choose how to demonstrate learning.
Well-designed assessments are individualized, focused on learning and growth, motivating, amenable to students regulating their own learning, and useful to a variety of audiences. Detailed, task-specific comments on student work can activate student interest and result in better performance.	Offer individualized assessments focused on each student's strengths, needs, and interests. These may provide not just overall measures of learning, but also useful feedback about what each student needs to do to keep moving toward mastery.
A variety of classroom-based assessments are associated with significant gains in student learning. These include self- and peer assessments, portfolios, assessments using new technologies, and formative uses of summative tests.	Use a variety of formative and summative classroom-based assessments in order to provide students and teachers with up-to-the-minute feedback on learning progress and with the most effective ways to demonstrate proficiency on common standards.

Such systems do not offer opportunities for reassessment, making students unlikely to attempt to master missing concepts after grades have been given, even though many students lack the academic foundation needed for what comes next (Sturgis 2014). Further, grades may have value as a reward, but low grades are not effective motivators. There is no research evidence that low grades prompt students to try harder. It is more common for low grades to prompt students to withdraw from learning (Guskey 1996, 2011).

How, when, and for what purposes students are assessed are vital issues in competency education programs. By design, there is no single determination of what assessment should look like and how it should proceed. Assessments can and do take a variety of forms, including traditional tests, computerized adaptive quizzes, performance-based tasks, self- and peer assessments, portfolios, and elaborate projects culminating in exhibitions to community audiences.

Advocates of competency education consider a transparent system of both formative and summative assessments—tied to common standards—to be foundational. They use multiple measures and demonstrations of progress rather than performance on a single time-based event. Students move on from a learning unit only once they have successfully demonstrated the requisite progress toward mastery, regardless of the time needed to achieve it or the progress of their peers. Evaluating students as "proficient" or "not yet proficient" rather than ranking students along the traditional A-F grade scale is meant to signal that all students can and will achieve success (Sturgis 2014).

A definition of high-quality *student-centered* assessment sets a high bar, stating that such assessment "is individualized, promotes learning and growth, motivates students, actively engages students in the regulation of their own learning, and is informative and useful to a variety of audiences." A competency-based system affords the opportunity to build in many of these elements. By its nature relatively individualized, competency-based assessment allows students to progress at their own pace, demonstrating their learning at different times and potentially in different ways. Some schools or teachers allow students to choose or create their own demonstration of mastery within a rigorous set of guidelines. A student who struggles with traditional test-taking may want to give an oral presentation, while an introverted student may wish to write a paper.

Unlike traditional testing regimens, a competency-based system of assessment also relies on opportunities for feedback and revision. In addition to promoting learning and growth, the possibility for revision helps to increase student motivation. This contradicts the longstanding belief that traditional grades motivate students through competition and ranking everyone in relation to each other. In fact, an increasing body of research suggests that competitive learning environments are powerfully demotivating and disengaging for many students, particularly for those already marginalized in school (Roseth, Johnson, & Johnson 2008).

High-quality student-centered assessment also affords data for many purposes and audiences. Formative assessment seeks to provide both students and teachers with ongoing, day-by-day feedback, so they can track learning progress and modify curriculum and instruction as needed. This may include informal check-ins between student and teacher, short computerized exercises to measure understanding, or guided peer assessment.

Summative assessments, by contrast, typically occur less often in a competency-based education system, only once students feel they are ready to demonstrate proficiency. Though summative assessments are used as "gateways" to the next set of competencies or even to graduation, they can still serve a formative role. If a student attempts a summative assessment and does not reach the necessary level of proficiency, the teacher and student can use assessment information to help the student refocus efforts and fill gaps in knowledge and skill. In addition to their uses determining grades, advancement, retention, and graduation eligibility, these summative assessments can also be useful competency snapshots for administrators, policymakers, and the public to evaluate school performance on common standards.

Research on assessment, like that on motivation, student agency, and social learning helps to define by extrapolation the best practice applications of competency education. As the many versions now falling under the competency-based umbrella continue to grow, the field faces the difficulty of cohering under a single understood definition of high-quality approaches (to our mind, one that incorporates the elements of personalized learning); while simultaneously confronting political and implementation issues ahead.

THE PROMISE: NAVIGATING CHALLENGES, SEIZING OPPORTUNITIES

Competency education is currently one of the hot "innovation spaces" in education reform. In an attempt to ensure that these efforts are more lasting and widespread than previous rounds of mastery-oriented reforms, we have highlighted potential lessons from the factors that historically limited the growth and sustainability of such innovations and suggested how the work of building competency-based systems can be infused with new research and tools for learning, motivation, peer interactions, assessments, and more.

Some of the limiting policy and implementation factors of the past persist even now. We continue to wrestle with everything from developing nuanced assessments that can meet accountability demands to adequately supporting the most effective methods for traditionally underserved learners. At the same time, new opportunities exist to drive toward a more personalized vision of competency education; one that results in clearly improved learning outcomes for the full range of students—and that is feasible and affordable to implement widely. In this final section, we explore the political and implementation opportunities and challenges facing personalized competency-based efforts.

Policy Drivers and Political Challenges[12]

A number of major issues dominating today's education landscape will impact the national appetite for making the legislative and regulatory shifts necessary for a thriving competency-based system. Efforts to expand competency education must navigate: the ongoing implementation of the Common Core and related assessments; federal and state decisions about accountability measures; the scarcity of funding for and solid research on innovation; and the time typically required for innovations to grow, be evaluated, improve, and reach maturity.

COMMON CORE STATE STANDARDS

As noted above, the development of the Common Core and other state standards solves a central problem earlier mastery learning advocates faced: contending with many disparate units of learning without clear agreement on the ultimate goal. With the introduction of the Common Core, educators are able to align their instruction, at least in ELA and math, to the same college- and career-ready standards used across the country. The hope of competency education reformers is that teachers, schools, and districts implementing the Common Core will turn to competency-based approaches as the best way to ensure all students have the time and support to reach the high standards (Hess, Gong, & Bayerl 2014).[13]

However, others may view the practical challenges of enacting competency education, which requires disturbing many of the traditional organizational elements of school, as disruptive to their efforts to help students reach high standards. Moreover, if the assessments under development to measure student achievement of the Common Core occur at particular moments in a student's career, they are likely to reify the limitations of traditional time-based systems. Led by New Hampshire and the Smarter Balanced Assessment Consortium, some states are considering whether to offer interim assessments and robust performance assessments to determine student progression—a critical need in a competency-based system.

ASSESSMENTS

Well before the Common Core debates, teachers and school leaders interested in creating competency-based or other similar systems grappled with how to measure mastery and conduct performance assessments in affordable

and valid ways for large groups of students. Hopefully as states tackle core assessment issues accompanying their implementation of competency education models, they will be able to build from those hard-learned lessons. For example, we know much more about how schools across a system can develop a shared understanding of proficiency and what that means for the content, rigor, and format of assessments.[14] Furthermore, ensuring quality and reliability is more important than ever to mitigate the effects of high student mobility and to reassure colleges and employers of the merit of secondary school experiences of candidates for admission or jobs.

Other critical questions that must be resolved include how to balance reliability, cost, and efficiency. Fortunately, this work has already begun. Researchers, states, intermediaries, and funders are exploring how to craft assessments that meet both formative and accountability needs, and reflect the full range of knowledge and skills that go into college, career, and civic readiness in the 21st century.[15]

ACCOUNTABILITY

Since the passage of No Child Left Behind in 2002, accountability has dominated the educational landscape. Many districts have at least one low-performing school undergoing "turnaround" efforts, as the law prescribes, and some districts have multiple schools with this status. As states start to take advantage of seat-time waivers to implement competency-based reforms, working out accountability systems will still be a priority. For example, how should schools account for a student who takes longer than a year to reach proficiency in a certain subject area? How can districts implement multiple measures of competency and meet accountability demands? It is not yet clear how to make such changes while continuing to hold schools accountable for the academic progress of all their subgroups of students at specific points in time.

INNOVATION SPACE

Most states (42 at last count) now provide some measure of flexibility for schools to opt out of seat-time requirements and award mastery-based credits. New Hampshire and Maine have gone furthest by placing personalized competency education at the center of their improvement

For Your Consideration... Politics and Policy

Common Core State Standards

- What kinds of alignment will help the competency-based movement to be seen as supporting the Common Core and other standards efforts rather than distracting from them?
- What additional standards and competencies still need to be determined for a competency-based system and how will systems go about doing so?

Assessment

- How can we ensure that assessments are useful and actionable enough that they help both students and teachers improve?
- Can such a multifaceted assessment system be implemented at a reasonable cost?

Accountability

- How will schools be evaluated and held accountable for student progress in a competency-based system where time is a variable?
- What is needed to ensure locally developed and scored accountability measures provide rigor, depth of knowledge, skills, and transference across districts and into postsecondary settings?

Innovation Space

- How can we ensure the lessons learned from the early adopters are captured and shared?
- What is needed to protect the innovation space in the face of numerous and competing demands?

Funding

- What would need to change about teacher contracts and per-pupil budgeting in order to accommodate competency education?
- How do we determine whether competency-based models are cost effective (including a consideration of longer-term, cost-benefit analyses of intended outcomes)?

efforts. Other states, such as Iowa, are encouraging competency-based innovation in districts while studying the possibilities. Networks of states, districts, and schools, supported by both local and national organizations, are running pilots that are moving toward competency-based models in K-12 systems, starting with permitting greater flexibility in pacing and curriculum.[16]

These efforts contribute much to the energy, expertise, and enthusiasm for this innovation space. However, reaching greater scale has been limited by competing priorities and the long, complex process of persuading teachers, students, parents, and policymakers to make significant change. Particularly challenging is the lag time between implementation and evaluation, as outcomes data from early adopters is just starting to emerge. For current efforts to be successful and spread to more states, it is crucial that proponents secure policymakers' commitment and patience to protect the innovation space in the face of numerous additional demands.

FUNDING

Despite the make-or-break nature of financing innovation, there is little to no research yet available on the costs associated with personalized competency education.[17] Nor is there documented discussion of the potential impact of competency-based approaches on traditional school finance models (often based on seat time) and teacher contracts (usually based on set hours and calendars). Some school systems have been extremely creative in finding workarounds through the complicated formulas used to calculate per-pupil spending to support students who earn credit in alternative ways, such as off-site internships, dual enrollment, or online courses. Yet few, if any, systems have confronted how to do such customization at scale for every student. Some newer experiments in student-based budgeting (also known as weighted funding) get closer to solving this issue, but most of these models still presume a relatively fixed time allotted for schooling. Before any competency-based system can grow to scale, we will need to know much more about both explicit and hidden costs and the effects on school funding systems.

The development of the Common Core and other state standards solves a central problem earlier mastery learning advocates faced: contending with many disparate units of learning without clear agreement on the ultimate goal.

Implementation Headwinds and Tailwinds

The research reviewed in the previous section points to the potential efficacy of competency-based approaches that personalize education to increase the engagement and achievement of the full range of diverse learners in our schools. However, significant implementation challenges may prevent these ideas from reaching their potential, even if the broader political and policy issues are resolved. These challenges include: training teachers in new approaches, maintaining a supportive school culture, galvanizing community buy-in, and maximizing the advantages and minimizing the disadvantages of technology.

TEACHING IN A COMPETENCY-BASED SYSTEM: INSTRUCTIONAL SHIFTS

Perhaps the single most important factor in the success of a personalized competency-based system is whether teachers have the opportunity to develop their expertise in competency-based approaches. It is not just initial training that matters, but also participating in an ongoing, supportive professional community where teachers continually receive feedback and hone their skills (OECD 2014). Effectively teaching in a competency-based setting calls upon teachers to embrace being learners themselves, to collaborate with others in non-traditional ways, and to be constantly evaluating their own practice.

The skills needed to teach in a personalized competency education environment are only beginning to be defined.[18] However, they are likely to have much in common with exemplary practices of student-centered teaching that have been identified (Cervone & Cushman 2012). As student-centered teachers, those in a personalized competency-based system will need to support each student in developing a new relationship to learning—defined by increasingly complex challenges and growing autonomy. Ownership of learning and opportunities to relearn can motivate students, but teachers will need to be adept at maintaining motivation and providing effective supports for however long it takes struggling learners to see tangible signs of progress. Teachers also need the know-how to coach adolescents to develop the mindsets and self-regulation skills to become increasingly independent and self-directed learners. No teacher preparation programs we have identified provide explicit instruction on teaching in competency-based settings, although some are beginning to include more coursework on related concepts, such as developing mindsets, self-regulation, and other metacognitive skills.

TEACHING IN A COMPETENCY-BASED SYSTEM: ADMINISTRATIVE SHIFTS

We now have a wealth of examples of ways that schools have shifted their school governance to the kinds of distributed leadership necessary for a successful competency-based school; infused their professional development with meaningful and teacher-led training; and fostered a culture of inquiry and exchange through increased common planning time, non-evaluative classroom observations, and regular student work review.[19]

Yet, although a small number of schools have been pursuing modern-era competency education for almost 20 years, administrative issues remain a major hurdle. Common examples include implementing a manageable, streamlined system for tracking students moving at different paces, making time for customizing individual learning plans and supporting individual students, and integrating course schedules and competency assessments with state reporting systems. In addition, the increased mandates for and definitions of teacher evaluations frequently do not align with the kinds of pacing and assessment used in competency education. For some of these administrative challenges, technological advances may offer some hope.

TECHNOLOGY IN A COMPETENCY-BASED SYSTEM: INSTRUCTIONAL SHIFTS

Many proponents of competency education cite recent leaps in technology as a means to both expand instructional possibilities and ease administrative difficulties. There is growing support for blended classrooms that combine the best elements of face-to-face learning and virtual learning. One exciting example is the use of technology to enhance the teacher's "toolkit" to promote engagement—often with peers across the city or across the world (LaBanca et al. 2013; Darling-Hammond 2010).

Despite its significant role in making competency education possible, technology is no replacement for the teacher-student relationship. Numerous studies and reports have established the benefits of blended instructional settings that pay careful attention to the need for in-person mentoring, peer-group learning, and quality supports (DOE 2010).[20] Thoughtful and effective integration of digital tools requires teachers to be skilled at balancing individualized instruction with collaborative group learning, and at blending face-to-face learning with virtual instruction. Although some schools and online models of competency education are so individualized that students spend the vast majority of their time working alone to complete required tasks within learning progressions, the trend among competency education leaders is away from such an extreme version. While such models can be efficient and potentially lower costs, they do not take into account the importance of the social aspects of learning, both in reinforcing academic concepts and in contributing to college readiness and civic development.

TECHNOLOGY IN A COMPETENCY-BASED SYSTEM: ADMINISTRATIVE SHIFTS

Improvements in data management and Internet connectivity may be one of the most important factors in enabling competency-based innovations to be implemented at a far greater scale. Information infrastructures and data systems allow teachers and schools to track learning experiences and demonstrations of competencies far more efficiently now than even five years ago. While many traditional classrooms have begun to use technology to help manage information, developing new systems is even more crucial for competency-based classrooms, with their personalized learning plans, individualized pacing, and frequent assessments. Complex analytics systems can slice

and dice a single data set in different ways for different constituencies, ranging from parents to policymakers, significantly reducing the staff time required. Student- and teacher-facing dashboards that allow for up-to-the-minute progress tracking can help to motivate students to achieve, as they can see their efforts paying off in real time (Sturgis 2014).

However, it is important to note that these platforms are still in their infancy, and districts are usually forced to "bundle" them with other student information and tracking systems. This can result in prohibitive up-front and training costs, and some risk of incompatibility between systems. Furthermore, vendors do not have financial incentive to adapt their systems for smaller districts or pilots, slowing the pace of innovation. The Council of Chief State School Officers is leading conversations to define the field's needs and spur more creative private software development, but these efforts are still early stage.

Furthermore, there are some administrative and organizational challenges even the best technology cannot supersede, such as reorganizing the school day, assigning teachers to new roles, and assuring sufficient time and quality for professional development. It is important to note that while digital platforms do exist, competency education will never be an "off the shelf" model. It will always require significant ongoing legwork at the school site and strong buy-in from the entire community.

LEADERSHIP, CULTURE, AND COMMUNITY

At the nexus of competency education implementation opportunities and challenges lies the role of the leader in shaping school culture and community involvement. Numerous studies in the past 15 years demonstrate how pivotal the school leader is in establishing a vision and a strong school culture if any reform is to take root and produce positive learning outcomes (Rice 2010; Leithwood et al. 2004). Effective leaders recruit, train, and retain the teachers who ultimately have the biggest single-factor impact on student learning.

For Your Consideration... Implementation

Teaching

- How, when, and where will prospective and current teachers develop the necessary competencies and capabilities to teach in competency-based classrooms?
- How do teacher preparation programs need to change in order to better prepare teachers for competency-based learning environments?
- How could evaluation and accountability measures for teachers support a move toward competency education?

Technology

- Do adequate platforms to manage the administrative side of competency education exist? If not, what is necessary to create them?
- What technical issues impede compatibility between competency-based systems and other accountability systems?
- What adaptive concerns must be tackled to support successful technology integration (i.e., training and cultural shifts)?

Leadership, culture, and community

- What is the role of school (and district) leaders in supporting teachers to develop and improve skills in competency-based settings?
- How do leaders establish a school culture that focuses on competency-based reforms amidst many competing demands?
- What do leaders need to do to bring parents and the community at large into the conversation?

Equity

- What are the critical equity concerns and what can be done to mitigate them?
- Where will the rise of technical solutions exacerbate unequal access to tools and resources?

At a time of overwhelming pressure on teachers, school leaders play a critical role in creating the vision and establishing the culture that can enable competency-based approaches to take hold. Numerous case studies and profiles of competency-based schools indicate the need for a leader capable of encouraging and supporting whole staff involvement in a distributed leadership approach (e.g., Center for Best Practices 2012; Priest et al. 2012; Wolfe 2012). However, education schools and certification programs are just beginning to shift toward this vision and are not yet training enough leaders to meet the growing demand.

Competency education also requires leaders to engage parents and community partners in meaningful conversations about educational goals and measurement. A recent report by the Maine Education Policy Research Institute highlights the critical nature of involving the whole school community in the shift to a competency-based system, the benefits of doing so, and the skill, time, and effort it entails (Stump & Silvernail 2014). As with most significant school-based instructional and design transformation, leaders who build and sustain a culture that embraces competency education may prove the crucial different between reforms that thrive and those that fade.

EQUITY

Many competency education advocates share the concern that the approaches could actually increase inequity when put in place at a large scale —even if implemented well. At least in the short run, achievement gaps between students of color, English language learners, special needs students, lower-income students, and their more advantaged peers are all but guaranteed to widen. Advanced students are expected to move ahead quickly while less advantaged or avid students may find themselves moving more slowly. However, personalized competency education, along with other student-centered approaches, can yield improved outcomes for these populations when the proper resources are in place. Meeting the persistent challenge to ensure lower-skilled students have high-quality teachers and the supports they need to remain enrolled, engaged, and graduate will be a major factor in whether competency-based reforms can reach scale. We will explore competency education's implications for equity in far more detail in a forthcoming companion paper, as described in the next section.

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CONCLUDING THOUGHTS

In this report, we described the landscape of modern-age competency education movement and traced its roots in progressive education, mastery learning, and the standards movement in order to better understand the positive outcomes of past approaches, their critiques, and the challenges they faced. We coupled this historical analysis with recent research on learning science and theory, including motivation, agency, and assessment, to make a case for a personalized form of competency education approaches. Finally, we laid out some of the major policy, political, and implementation opportunities and challenges competency-based reformers must leverage and grapple with if the work is to reach any sustaining scale.

Answering many of the questions raised in this paper requires careful analysis. Clear data on outcomes are just beginning to emerge. Several studies are currently underway, thanks to efforts of the Regional Education Labs (especially the REL Northeast College and Career Readiness Research Alliance, REL Midwest, and REL Central and the Marzano Research Laboratory), the American Institutes for Research (funded by the Nellie Mae Education Foundation), and RAND (funded by the Gates Foundation). Yet even these ambitious efforts are struggling to provide the field the answers it needs, due to the vast diversity in implementation and definition across the many models that claim to be competency based. In an effort to ground the field in an area we believe is of utmost importance, Students at the Center will release a companion paper later this year covering what is already known about competency education's implications for equity. This piece will explore equity and outcomes through analyzing previous research and data-based efforts that help address key questions about the impact of competency education on vulnerable and underserved populations.

Before we attempt to scale personalized competency education from a few promising examples to a transformation of the nation's high schools, much more must be known about the issues highlighted here. Fortunately, the growing number of competency-based schools and programs are beginning to yield some answers and insights. The lessons we are able to derive from the historical and theoretical grounding leave us hopeful for the promise of competency education—a personalized system that ensures each and every learner leaves secondary school ready to succeed in college, career, and civic life. At the same time, these lessons present challenges that have yet to be fully addressed, and today's context offers new questions to answer. As the frontline innovators continue to improve and make their models more personalized and rigorous, we look forward to being part of building the knowledge base that informs this movement.

» The lessons we are able to derive from the historical and theoretical grounding leave us hopeful for the promise of competency education—a personalized system that ensures each and every learner leaves secondary school ready to succeed in college, career, and civic life.

ENDNOTES

[1] In 1890, a paltry 200,000 students attended high school; by 1920, enrollments were *10 times* that number (Church & Sedlak 1976). In 1900, only about 6 percent of American adolescents completed the 12th grade; by 1939, more than 50 percent did so (census data).

[2] These approaches may also be called competency-based, proficiency-based, mastery-based, or performance-based education: http://edglossary.org/competency-based-learning

[3] The seat-time method of awarding credit is also known as the Carnegie Unit. For a thorough investigation of the development of the Carnegie Unit and the impact on current secondary and postsecondary education structures, see Silva & White (forthcoming).

[4] See the CompetencyWorks wiki page "Examples of Competency-Based Schools and Districts": http://competencyworks.pbworks.com/w/page/67552887/Examples%20of%20Competency-based%20Schools%20and%20Districts

[5] The Hewlett Foundation joined the Nellie Mae Education Foundation as an equal partner supporting Students at the Center in 2014, helping expand the research and knowledge building focus to include concepts of deeper learning.

[6] For a more detailed investigation of evolving terms in the blended learning arena, see: Patrick, S., Kennedy, K., & Powell, A. 2013. *Mean What You Say: Defining and Integrating Personalized, Blended and Competency Education*. Vienna, VA: iNACOL. Available at http://www.inacol.org/cms/wp-content/uploads/2013/10/iNACOL-Mean-What-You-Say-October-2013.pdf

[6] See the CompetencyWorks wiki page "Examples of Competency-Based Schools and Districts" for case studies, videos, school models and more additional links: http://competencyworks.pbworks.com/w/page/67552887/Examples%20of%20Competency-based%20Schools%20and%20Districts

[7] See McClaskey, K. & Bray, B. 2013. "Personalization v. Differentiation v. Individualization Chart." Amherst, NH: Personalize Learning, LLC. Available at: http://www.personalizelearning.com/2013/03/new-personalization-vs-differentiation.html

[8] With the recent withdrawal of several states from the testing consortia, the final number of states to participate in the Common Core remains in question. Nevertheless, the debates have resulted in a renewed interest in close to all 50 states in defining high-quality learning standards and outcomes for students.

[9] Unless otherwise noted, the research discussed in this section comes from the chapter "Applying the Science of How We Learn" by Christina Hinton, Kurt W. Fischer, & Catherine Glennon in *Anytime, Anywhere: Student-Centered Learning for Schools and Teachers* (Wolfe, Steinberg, & Hoffman, eds. 2013) and the authors' paper *Mind, Brain, and Education: The Student at the Center Series* (2012). Both are based on extensive literature reviews.

[10] Unless otherwise noted, the research discussed in this section comes from the chapter "Prioritizing Motivation and Engagement" by Eric Toshalis & Michael J. Nakkula in *Anytime, Anywhere: Student-Centered Learning for Schools and Teachers* (Wolfe, Steinberg, & Hoffman, eds. 2013) and the authors' paper *Motivation, Engagement, and Student Voice: The Student at the Center Series* (2012). Both are based on extensive literature reviews.

[11] Unless otherwise noted, the research discussed in this section comes from the chapter "Making Assessment Student Centered" by Heidi Andrade, Kristen Huff, & Georgia Brooke in *Anytime, Anywhere: Student-Centered Learning for Schools and Teachers* (Wolfe, Steinberg, & Hoffman, eds. 2013) and the authors' paper *Assessing Learning: The Student at the Center Series* (2012). Both are based on extensive literature reviews.

[12] For a detailed exploration of policy consideration for competency education, particularly at the federal level, see: http://www.competencyworks.org/wp-content/uploads/2014/01/CompetencyWorks_A_K-12_Federal_Policy_Framework_for_Competency_Education_February_2014.pdf. For policy considerations at the state level, see: http://www.achieve.org/files/AchieveCBPTheImperativeforStateLeadership.pdf

[13] Even if a state decides not to implement the Common Core, almost all 50 states are defining a set of higher-quality, more rigorous college- and career-ready standards. So the idea holds that the Common Core debates have changed the political conversation to near-universal agreement for fewer and better standards, which in turn have the potential to align with competency-based efforts.

[14] The last time states attempted to develop performance assessments was in the 1990s. David Conley's forthcoming investigation of assessment for deeper learning provides a detailed look at the promise and the challenges of large-scale performance assessment systems.

[15] See Conley (2014) for an overview of current efforts to design and implement such assessments.

[16] Such networks include: Achieve, Council of Chief State School Officers/Innovation Lab Network, Carnegie Corporation of New York/Springpoint, Digital Promise, Diploma Plus, Great Schools Partnership, Re-Inventing Schools Coalition

[17] The research community has noted the absence of information on performance assessments for competency education. Researchers across the country engaged in studies of competency education discussed the absence on a REL-NEI conference call on July 15, 2014. Further evidence includes this presentation by the National Governor's Association (slide 19: http://www.studentsatthecenter.org/sites/scl.dl-dev.com/files/DistrictStateConsiderationsIncorporatingExpandedLearningCompetency-BasedSystems.pptx), July 29, 2014. Some of the studies emerging from the efforts in Maine explore how their districts addressed some of these questions. However, the authors are not aware of anything at the level of cost modeling or a comparison analysis underway. For example: https://usm.maine.edu/sites/default/files/cepare/PBDS%20Report.pdf

[18] In 2015, Students at the Center will be releasing draft competencies for educators in student-centered settings, including personalized competency education settings.

[19] See the CompetencyWorks wiki page "Examples of Competency-Based Schools and Districts" for case studies, videos, school models and more additional links: http://competencyworks.pbworks.com/w/page/67552887/Examples%20of%20Competency-based%20Schools%20and%20Districts

[20] See, for example: Blended Learning: Research Perspectives, Volume 2 from the Christensen Institute: http://www.christenseninstitute.org/publications/blended-learning-research-perspectives-volume-2

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What is Competency Education?

Across the nation, schools, districts and entire states are reshaping their education system to ensure students reach proficiency in the skills they need for college and careers. It may be called competency-based, proficiency-based, mastery-based or performance-based education, but it speaks to one goal – to lift academic expectations while ensuring that every student reaches them.

The concept is simple: Learning is best measured by mastery rather than time spent in the classroom.

Competency education ensures students gain the academic and lifelong learning skills they need to be successful in an ever-changing world. Schools can personalize the learning experience, offering a variety of ways for students to learn and demonstrate learning. Students have more voice and choice, taking ownership of their learning. Students get the instructional support they need to succeed, even if it takes them multiple attempts over a little more time to achieve mastery. Academic rigor is sustained by measuring achievement against a common set of standards.

Transparency empowers students to have voice and choice

In competency education, students work at their academic level, understanding what they are learning and what they need to do next. Teachers provide timely assessments and extra support until students can demonstrate that they have mastered the concept. Students get the help they need, when they need it, so they can advance to a higher level of studies as soon as they are ready. This system ensures that our most underserved students are no longer left behind, and that all of our students can take their education as far as they are able.

The Five Elements of Competency Education

1. Students advance upon mastery.
2. Competencies include explicit, measurable, transferable learning objectives that empower students.
3. Assessment is meaningful and a positive learning experience for students.
4. Students receive timely, differentiated support based on their individual learning needs.
5. Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.

Six Ways Competency Education Improves Learning

1) Advancement Based on Proficiency, Not Time in School

Students work at their level, advancing to the next level of study based on their demonstration of skills, not age or the number of days in school. Proficiency requires students to be able to apply skills. Students can advance beyond their grade level in one subject while being on a different grade level in another subject. Struggling students get additional support. Students are no longer passed along to the next grade without the skills to succeed.

Learning is measured by mastery

2) Transparency Empowers Students and Expands Learning

Engagement and motivation increase when students know what is expected of them and what proficiency looks like. Students study at their level, working along transparent learning progressions towards mastery of the Common Core or other college- and career-ready state standards. They own their learning, seeking ways to learn and demonstrate what they have learned that are relevant to them.

3) Assessment and Grading Designed to Help Students Learn

Students have multiple ways and multiple opportunities to demonstrate skills until they reach proficiency. Teachers use consistent methods of assessing, and grades communicate how students are progressing. Summativeassessments validate that students have mastered the content and skills. As a result, teachers can certify that students are prepared when they move on to the next level.

Just listen to students and teachers to know why schools, districts and states are turning to competency education:

I feel like I had one of my best years. I got to set my own goals and watched myself grow. I'm getting excited to go to school. Now I want to come every day.

-Maya, fifth-grade student

The number one change is my students are excited about learning. They are taking control of their knowledge and they are keeping track of it. They stay on top of things
because they know what is expected and what is coming up next. They ask more questions and are more willing to participate.

-Mrs. Collins, fifth-grade teacher

The teachers have a better relationship with you here. They genuinely care about your success rather than just trying to push you through so you graduate even though you don't understand the subjects you are passing.

-Catherine, tenth-grade student

4) Timely Supports So Students Can Stay on Pace

Students' progress is monitored in real time, benchmarked to personalized learning plans to keep them on track to college and career readiness. Teachers collaborate to pinpoint where students need help. Instructional support and tutoring is integrated into the school day so students can access them when needed.

Through the application of knowledge comes deeper learning

5) Application of Lifelong Learning Skills and Academic Content

Students become prepared for college and careers by developing necessary lifelong learning skills, such as problem solving, communication, collaboration, teamwork, and persistence, that are needed to master academic knowledge. Deeper learning is emphasized through the application of knowledge. Students can soar beyond their grade level.

6) Strong Cultures of Learning and Continuous Improvement

Data about students' progress drives the professional development of teachers and the continuous improvement of schools. Districts and schools are constantly innovating to ensure students are engaged in school, successfully mastering the curriculum, and keeping pace on their way to graduation.

Why it Matters

- About **1 million students a year leave high school** without a diploma.
- 70% of higher education instructors said **their students do not comprehend** complex reading materials; 66% said students cannot think analytically.
- The current system allows students to progress because of age, not demonstrated ability. This is resulting in **gaps – some small, some big, all damaging.**
- Students, families and states bear the burden of a time-based education system. College remediation costs **$2.3 billion per year.**
- Our graduates do not achieve the level of academic and career skills as those of other countries. This makes them **less competitive** in a global economy.

How it Works

All students must demonstrate what they have learned before moving on.

Before students can pass a course, move on to the next grade level, or graduate, they must demonstrate that they have learned what they were expected to learn. If students fail to meet learning expectations, they are given more support and instruction from teachers, more time to learn and practice, and more opportunities to demonstrate progress.

Teachers are very clear about what students need to learn.

In every class, students know precisely what teachers expect—no guesswork required. The learning expectations for the course are clearly described and communicated, and students will know precisely where they stand throughout the course—for example, a student will know that she has achieved three of six expected learning standards, but that she needs to work harder to achieve the last three before she can pass the course. Importantly, her parents will also know precisely what she's learned and what she may be struggling to learn.

Common, consistent methods are used to evaluate student learning.

In many schools, different learning expectations are applied from course to course, and different methods and criteria are used to evaluate what students have learned. Consequently, one Algebra I course in a school may be very challenging, for example, while another Algebra I course may be comparatively easy—and a B earned in the "difficult" course might actually represent stronger learning achievement than an A in the "easy" course. Proficiency-based learning applies the same standards to all students, while teachers use consistent methods of evaluating and reporting on student learning—everyone knows precisely what grades stands for and what each student has learned. As a result, grades mean the same thing from course to course, and schools can certify that students are prepared when they move on.

While learning expectations are fixed, teachers and students have more flexibility.

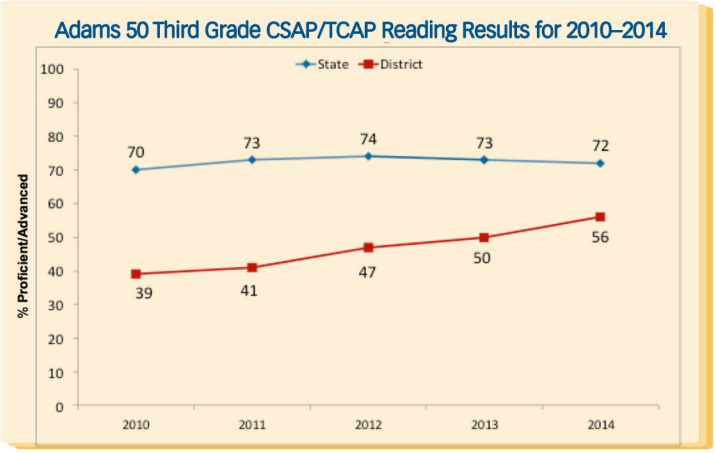
Even though learning expectations and evaluation methods are common and consistent, teachers can be given more flexibility in how they teach and students can be given more choice in how they learn. For example, teachers don't need to use the same textbooks, assignments, and tests—as long as their students learn what they need to learn, teachers can develop new and more creative ways to teach. Similarly, students can be given an assignment—research an American president, for example—but they can choose which president to study or how they want to show what they've learned (one student may write an essay, while others may create a short documentary using archival photos or an audio podcast in the style of a presidential address). As long as students meet the course expectations—demonstrate a strong understanding of the election system, the executive branch of the federal government, and the role of the American president—teachers can teach and students can learn in the ways that work best for them.

Students show what they know

Adapted from "How Does Proficiency-Based Learning Work?" by the New England Secondary Schools Consortium and Great Schools Partnership. Leadership in Action Issue Brief #11; A Briefing Series for New England's Educational Leaders.

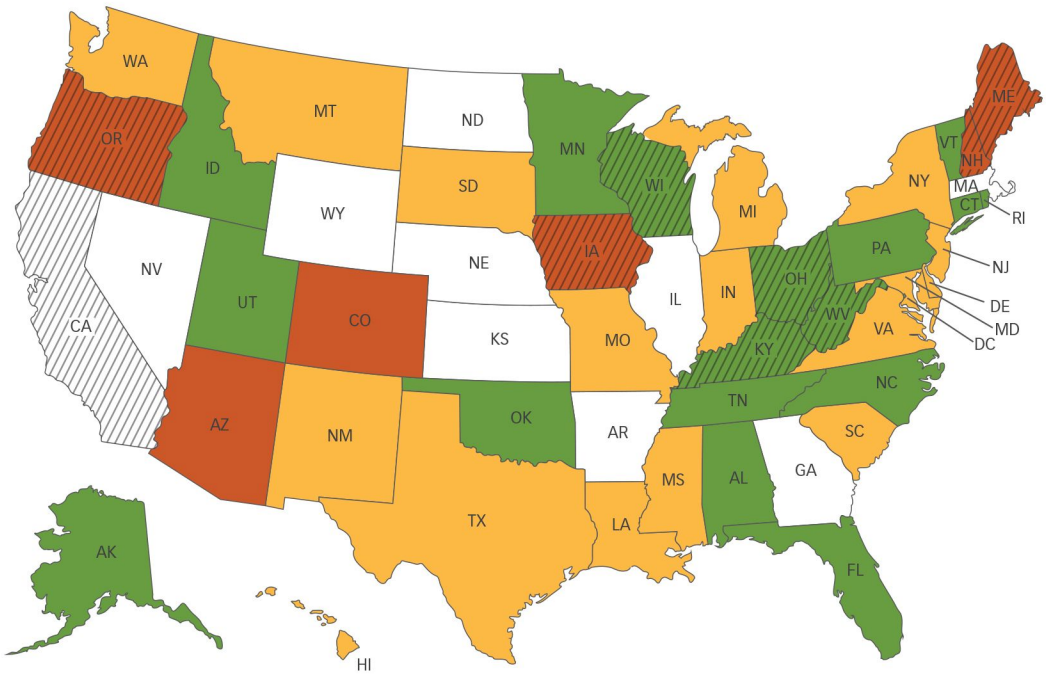
Getting Results

Adams 50 School District in Colorado serves a diverse population with 81% of students on Free and Reduced Lunch and 45% English Language Learners. The district was considered a Priority Improvement district in 2009 with a third of their schools designated as lowest performing. Within two years of implementation of competency education, all the schools were out of turnaround status and the number of schools in the accredited status had doubled. The graduation rate continues to steadily increase, reaching 74% in 2013.



Snapshot of State Policy

While states work to ensure all students are prepared for future success in a globally competitive society, emphasizing greater rigor and deeper application of knowledge and skills, they are confronted with the fact that the traditional time-based model of education may not be up to the task. States are now rapidly advancing competency education. Thirty-six states have already revised policies to allow for proficiency-based diplomas, waived seat-time to allow competency-based pathways, created credit flexibility, or initiated a redesign of their education system around student learning.



Advanced States
Those states with clear policies that are moving towards proficiency-based education; more than just an option.

Developing States
Those states with pilots of competency education, credit flexibility policies, or advanced next gen policies for equivalents to seat-time.

Emerging States
Those states with waivers, task forces, and limited policies.

No Policies in Competency Education
States with seat-time and no competency education policies.

ILN States
The Council of Chief State School Officers is working with states to identify new designs to be scaled for widespread implementation.

In a proficiency system, failure or poor performance may be part of the student's learning curve, but it is not an outcome.

– Proficiency-Based Instruction and Assessment, Oregon Education Roundtable

About Competency Works and iNACOL

CompetencyWorks provides information and knowledge-sharing about competency education through a website, a blog filled with practitioner knowledge and policy advancements, and a wiki that makes it easy to get examples of materials. CompetencyWorks provides resources for new innovators and early adopters so they can rapidly learn about lessons learned and different approaches to inform their work. CompetencyWorks is a collaborative initiative, led by iNACOL in partnership with American Youth Policy Forum, Jobs for the Future, MetisNet and the National Governors Association.

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Stay on top of advancements in competency education at **CompetencyWorks.org** and visit iNACOL at **www.inacol.org**

For More Information On Competency Education

- Cracking the Code: Synchronizing Policy and Practice for Performance-Based Learning, available at CompetencyWorks: www.competencyworks.org
- The Learning Edge: Supporting Student Success in a Competency-Based Learning Environment, available at CompetencyWorks: www.competencyworks.org
- From policy to practice: How competency-based education is evolving in New Hampshire, available at Christensen Institute: www.christenseninstitute.org
- Necessary for Success: Building Mastery of World-Class Skills – A State Policymakers Guide to Competency Education, available at CompetencyWorks: www.competencyworks.org
- The Shift From Cohorts to Competency, available at Digital Learning Now: www.digitallearningnow.com

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Students soar when motivated and engaged

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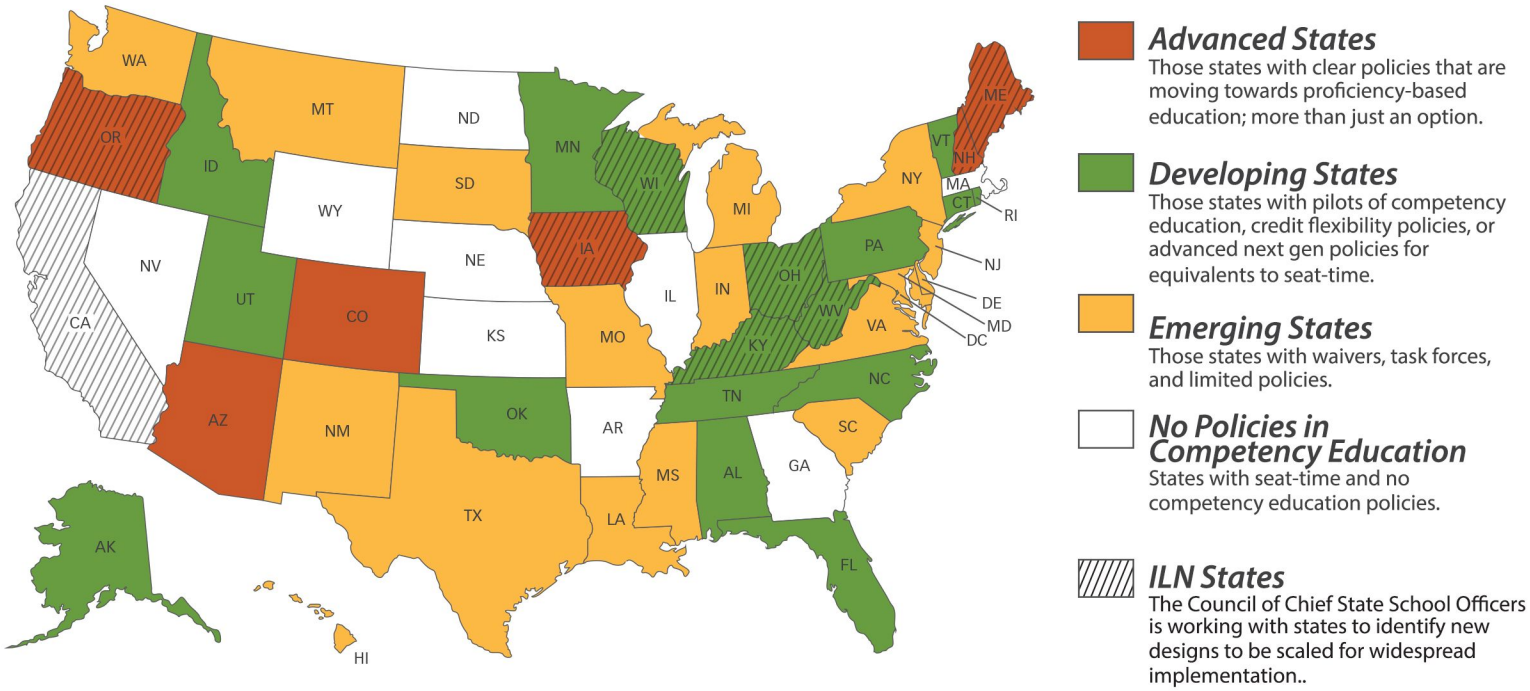
A Snapshot of Competency Education State Policy Across the US

New Hampshire has embraced competency education because we know it is the only way we can fully prepare our students for an ever-changing world. Competency education allows us to take advantage of resources, in schools and the community, to personalize education so that every student is on a path to college and career readiness.
– New Hampshire Education Commissioner Virginia M. Barry

Transparency empowers students to have voice and choice

While states work to ensure all students are prepared for future success in a globally competitive society, emphasizing greater rigor and deeper application of knowledge and skills, they are confronted with the fact that the traditional time-based model of education may not be up to the task. States are now rapidly advancing competency education. Thirty-six states have already revised policies to allow for proficiency-based diplomas, waived seat-time to allow competency-based pathways, created credit flexibility, or initiated a redesign of their education system around student learning.



How States are Advancing Competency Education

Drive Policy by Student Learning Outcomes:

Focus on student learning and student learning outcomes. First and foremost, policies support the needs of students.

Guard High Academic Standards:

States are vigilant to ensure that academic expectations do not slip and result in lower achievement for groups of students. Focus is on equity with high expectations for all students.

Expand Student Options:

State policies expand, not limit, the options that students have to reach learning outcomes.

Through the application of knowledge comes deeper learning

Create Shared Vision:

Policy development is not top-down. It keeps communication open, inviting stakeholders to contribute to the vision and the steps to get there.

Offer Districts and Schools Flexibility:

States are clear about desired outcomes and provide incentives for educators to take different pathways to achieve the goal. Process rules and regulations are removed to allow and encourage innovation.

Commit to Continuos Improvement:

Policies can evolve as we learn more about the dynamics of next-generation learning, allowing ongoing improvement efforts.

Just listen to students and teachers to know why schools, districts and states are turning to competency education:

I feel like I had one of my best years. I got to set my own goals and watched myself grow. I'm getting excited to go to school. Now I want to come every day.

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- Catherine, tenth-grade student

Eight Ways to Upgrade State Policy

States investing in redesign around personalized, competency education are upgrading policies and operations in the following areas:

1) Innovation Zones

States are encouraging districts to innovate and develop new learning models by offering exemption from administrative regulations and statutory provisions in an effort to improve the learning of students.

2) Competency-based Diplomas

States are replacing credit-based graduation requirements with proficiency-based requirements. For the first time, diplomas will have consistent value. States and districts are creating new transcripts that reflect what students know and can do.

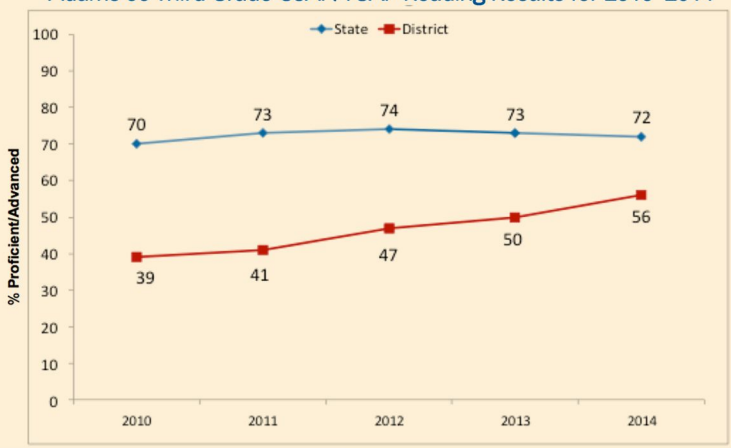
3) Supports and Advancement

Some states are requiring districts to provide additional supports to students who are not yet proficient. Others are eliminating barriers to advancement so that students can access curriculum above their grade level.

Getting Results

Adams 50 School District in Colorado serves a diverse population with 81% of students on Free and Reduced Lunch and 45% English Language Learners. The district was considered a Priority Improvement district in 2009 with a third of their schools designated as lowest performing. Within two years of implementation of competency education, all the schools were out of turnaround status and the number of schools in the accredited status had doubled. The graduation rate continues to steadily increase, reaching 74% in 2013.

Adams 50 Third Grade CSAP/TCAP Reading Results for 2010–2014



4) Systems of Assessments

Leading states are beginning to address the damaging misalignment of current assessment systems that have become intertwined with accountability policy. In competency education, the systems of assessments should be designed to provide feedback and monitor how students are progressing. Formative assessments are emphasized, providing timely feedback to students so they can address areas of academic weakness and teachers can fine tune instructional support. Summative assessments play an important role as a quality assurance mechanism by validating proficiency levels. Students who are struggling with the material have opportunities to take assessments again. Success is the only option.

5) Accountability and Quality Assurance

The primary accountability metric—driven largely by requirements and state responses to the federal No Child Left Behind law—has been to use end-of-year state assessments. The system does not need to be designed this way. First, using the core philosophy of competency education that progress in learning requires access to support, states are considering continuous improvement frameworks that provide feedback and support to schools. The accountability system can provide meaningful supports that promote improvement and innovation in schools rather than branding schools as failures. Second, accountability is a quality assurance mechanism with feedback loops measuring student pacing and academic rigor that emphasizes deeper learning.

6) Expanding Learning Opportunities

Policies enable students to demonstrate learning and receive credit through community-based learning such as work experience or service learning. Policies have also ensured that online learning is competency-based and available for students to accelerate learning beyond their grade level.

7) Information management systems

Although competency education has been in development for over two decades, recent technological advances—digital learning and information systems—are causing it to flourish. Competency education generates enormous amounts of data on student learning that is best supported by an information system organized around student profiles and evidence of student work. Yet, much of today's information management infrastructure was designed around top-down accountability and compliance policies. Almost all are time-based systems that offer only weak snapshots of student progress at a point in time. As competency education continues to advance, states and districts will need to consider demand for portability of student records, meaningful student profiles, personalized learning maps, proficiency-based transcripts, portfolios of student work and evidence of learning, and new ways to measure performance in accountability systems.

8) Educator Workforce

Updated policies reflect an expansion of educator roles. Teacher preparation and professional development emphasize assessment literacy, deep understanding of the disciplines, and managing personalized classrooms.

With clear learning goals, teachers have flexibility in how they teach

Why it Matters

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- Advancing Competency-Based Pathways to College and Career Readiness: The Imperative for State Leadership, available at Achieve: www.achieve.org
- State Strategies for Awarding Credit to Support Student Learning, available at National Governors Association: www.nga.org
- From policy to practice: How competency-based education is evolving in New Hampshire, available at Christensen Institute: www.christenseninstitute.org
- Strengthening High School Teaching and Learning in New Hampshire's Competency-Based System, available at the Alliance for Excellent Education: www.all4ed.org

When Success Is the Only Option:

Designing Competency-Based Pathways for Next Generation Learning

Nellie Mae Education Foundation
Opening Doors to Tomorrow
www.nmefdn.org

iNACOL
International Association for K-12 Online Learning

Written by:

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About the Authors

In early 2010, the Nellie Mae Education Foundation asked Susan Patrick from iNACOL and Chris Sturgis of MetisNet to scan the field of competency-based approaches and identify avenues for philanthropic investments. The authors come to the issue from different perspectives: Susan from her advocacy for online learning, and Chris from her commitment to creating educational opportunities for over-aged, under-credited students to complete their high school diplomas. The findings and insights offered here are designed to generate discussion and to support the emerging leaders of next generation learning.

In the effort to establish an inclusive learning community, iNACOL has established a wiki at www.inacol.org to provide additional materials and to capture the insights of all those who are working to redesign education so that it works for all of our students.

About iNACOL

iNACOL is the International Association for K-12 Online Learning, a non-profit 501(c)(3) membership association based in the Washington, DC area with more than 3,700 members. iNACOL is unique in that its members represent a diverse cross-section of K-12 education from school districts, charter schools, state education agencies, non-profit organizations, colleges, universities and research institutions, corporate entities and other content and technology providers.

iNACOL's mission is to ensure all students have access to a world-class education and quality online learning opportunities that prepare them for a lifetime of success.

Online learning is expanding educational options for students regardless of their geographic boundaries, background or family income levels. In light of this, iNACOL is uniquely positioned to help identify online learning models that are emerging in the next generation of education, highlight new trends and help improve online programs and services. iNACOL's annual conference, the Virtual School Symposium (VSS), provides important analysis, interactive sessions and thought-provoking workshops for leaders looking to help shape the future of education.

About MetisNet

MetisNet works with foundations, government, and individuals to identify the most effective ways to shape investments that build communities, benefit children and families, and strengthen our future. Our mission stems from the very roots of our name—metis—a Greek word for local knowledge and wisdom. Drawing on multiple perspectives, MetisNet works with clients to develop vibrant, asset-based investment strategies. For more information, visit www.metisnet.net.

Nellie Mae Education Foundation

Opening Doors to Tomorrow

www.nmefdn.org

This report was made possible with funding from the Nellie Mae Education Foundation. The Foundation supports the promotion and integration of student-centered approaches to learning at the middle and high school levels. For more information, visit www.nmefdn.org.

Table of Contents

Introduction

> *In a proficiency system, failure or poor performance may be part of the student's learning curve, but it is not an outcome.*
>
> – Proficiency-Based Instruction and Assessment, Oregon Education Roundtable

This exploration into competency-based innovation at the school, district, and state levels suggests that competency-based pathways are a re-engineering of our education system around learning—a re-engineering designed for success in which failure is no longer an option.

Competency-based approaches build upon standards reforms, offering a new value proposition for our education system. Frequently, competency-based policy is described as simply flexibility in awarding credit or defined as an alternative to the Carnegie unit. Yet, this does not capture the depth of the transformation of our education system from a time-based system to a learning-based system. Competency-based approaches are being used at all ages from elementary school to graduate school level, focusing the attention of teachers, students, parents, and the broader community on students mastering measurable learning topics.

Certainly, much of the interest in competency-based learning is inspired by the enormous technological advancements that are opening up new avenues for learning. With the exception of Florida, all other virtual schools are stuck in a time-based system. With funding still dependent on seat-time, they are confined to operating within traditional school-based course schedules. Without a competency-based policy framework, they are unable to take advantage of the full potential of online learning. We simply cannot generate the anytime, anyplace, at any rate learning offered by the technologically enhanced innovations within the current time-based policy framework of seat-time-based funding, 180-day calendars, restrictions on when students can enroll in new courses, and end-of-year testing for exams.

Competency-based approaches also hold promise as districts explore new ways to expand and enrich support to students, challenging the assumption that learning takes place within the classroom. Out-of-school-time initiatives in Providence, Rhode Island, are exploring ways in which students can learn skills in after-school programs. In Chicago, the district is piloting a program for extended learning in which students can access online learning with support of staff from community-based

organizations. For older students re-enrolling in high school, competency-based schools are a lifeline, as it is physically impossible to accumulate credits before they age-out of the education system. Competency-based approaches, in which learning topics are explicitly shared with students and parents, create a formal mechanism to align community resources around student success.

The following discussion draws on interviews and site visits with innovators and the limited literature that has been developed on the topic of competency-based approaches. The first section introduces a working definition for competency-based pathways that hopefully will be the beginning of creating consensus on the characteristics of a high-quality approach to guide policy. The second section explores the driving forces behind competency-based innovations and implementation issues. The last section highlights a number of challenges facing states and districts as they explore competency-based approaches.

This paper has been designed to generate a deeper understanding, as it is critically important that competency-based pathways be implemented effectively with a vigilant focus on student learning. Otherwise, we risk creating an empty system that undermines our nation's efforts to raise standards and expectations for our children and ourselves.

On Creating a New Grammar

The issue of language is always a challenge when new concepts or paradigms are introduced. In order to not stumble upon the variety of catchy slogans and similar principles that are floating through education policy discussions, the following language will be used throughout this paper:

(1) Competency-Based Pathways:

(a) Multiple phrases are used by foundations, innovators, and state policy to capture the practice of students progressing upon mastery: standards-based, outcomes-based, performance-based, and proficiency-based. The use of "competency-based" has been selected as it is has already entered federal policy with its inclusion in Race to the Top (RTTT) and the subsequent state applications. In the second round of RTTT, nearly one third of the states included some reference to competency-based options for students, with almost all describing strategies to ensure that teachers master competencies.

(b) The phrase "pathway" is used instead of "system" intentionally. Based on the current developmental stage of competency-based approaches, there is no reason nor is it viable to try to fully replace the traditional time-based system in its entirety. Although there are examples of district and school options for a full conversion to a competency-based system, the assumption is that most innovators and early adopters will seek to create pathways that complement and inform the traditional, time-based system.

(2) Next Generation Learning (NxGL):

There are numerous branded initiatives across the country, many of them foundation-led, that are focused on promoting a mix of online learning, student-centric, competency-based approaches. Although often similar in principles, the variety of similar terms can cause confusion for policymakers and directs attention away from the core issues.

The definition developed by the Council of Chief State School Officers (CCSSO) is embraced within this paper as it has the broadest roots within the education system itself. In partnership with six states—Kentucky, Maine, New York, Ohio, West Virginia, and Wisconsin—CCSSO is launching innovative labs to support next generation learning that is rooted in six critical attributes, or essential conditions:

1. *Planning for Personalized Learning* calls for a data-driven framework to set goals, assess progress, and ensure students receive the academic and developmental support they need.
2. *Comprehensive Systems of Supports* address physical, social, emotional, and cognitive development along a continuum of services, availing opportunities for success to all students.
3. *World-class Knowledge and Skills* require achievement goals to sufficiently encompass the content knowledge and skills required for success in a globally oriented world.
4. *Performance-based Learning* puts students at the center of the learning process by enabling the demonstration of mastery based on high, clear, and commonly shared expectations.
5. *Anytime, Everywhere Opportunities* provide constructive learning experiences in all aspects of a child's life, through both the geographic and the Internet-connected community.
6. *Authentic Student Voice* is the deep engagement of students in directing and owning their individual learning and shaping the nature of the education experience among their peers.

"Our economy and overall way of life are changing and will change more in the coming years. The time has come for schooling to keep pace. If we want to improve our collective prospects for the future, we must increase the number of people who possess the skills and knowledge that prepare them for success in postsecondary education, work and life. This means improving learning outcomes for all populations. In our current system, young people from disadvantaged backgrounds are too often kept back to repeat grades because they fail to attain arbitrary, age-based benchmarks that still define the dominant design of most schools. By acknowledging that different students learn at different rates and attending to those differences as part of the educational endeavor, we can ensure equal opportunity by customizing appropriately without sacrificing high expectations."

– Nicholas C. Donohue, President and CEO, Nellie Mae Education Foundation

I. A Working Definition of Competency-Based Pathways

As we expand innovative competency-based approaches, it is important to build a working definition that can shape the characteristics of a high-quality, competency-based pathway that is focused on learning. The following is a three-part working definition that outlines the critical design principles of a competency-based pathway that can serve as a starting point for discussion:

- Students advance upon mastery
- Explicit and measurable learning objectives that empower students
- Assessment is meaningful and a positive learning experience for students

There is a tremendous risk in considering competency-based approaches as equivalent to credit flexibility. Simply unhooking credits from the Carnegie unit could contribute to a new mechanism for institutionalizing low expectations. Our challenge is to design competency-based pathways so that they replace the time-based system with a set of practices that propel students toward mastery of college and career-ready skills.

DESIGN PRINCIPLE 1: Students Advance upon Mastery

The core element of a competency-based approach is that students progress to more advanced work upon **demonstration of learning** by applying specific skills and content. The most important implications of this design principle include:

- **Students are advanced to higher-level work upon demonstration of mastery, not age.** It is possible that a ten-year-old student may be doing fourth grade math but reading at the eighth grade level. A high school student may be taking algebra while completing advanced online courses in college-level literature and history, earning dual-enrollment credits. In the United Kingdom, this is referred to as organizing education around "stage not age."
- **Students work at levels that are appropriately challenging.** Students are more likely to be intrinsically motivated when they are encountering coursework that is both challenging and in which they can be successful.[1] Students are empowered to progress at their own pace, becoming active, engaged, and more independent learners.

- **Students are evaluated on performance.** Students demonstrate that they have mastered the skills and content through multiple demonstrations of learning. Students are not graded subjectively or unevenly—based on indicators such as attendance, submitting homework assignments, or classroom participation—unless those behaviors are built into competencies.
- **Some students may complete courses more rapidly than others.** Essentially, all students will achieve A- or B-level work or will "try again." This may mean that some students may complete the courses sooner than others.
- **Earning credits is based upon demonstration of mastery, not seat-time.** Teachers work together to clarify the standards of proficiency for a course to ensure that high expectations are consistently implemented across classrooms.

DESIGN PRINCIPLE 2: Explicit and Measurable Learning Objectives That Empower Students

In competency-based practices, a course is organized into measurable learning objectives that are shared with students. Students take responsibility for their learning, thereby increasing their engagement and motivation. The implications of this design principle include:

- **The relationship between student and teacher is fundamentally changed.** Teachers take on a stronger role as facilitator and coach of learning rather than simply delivering content. The skills required of teaching increasingly focus on formative assessment and access to a broad range of instructional practices to help students that are struggling with a concept.
- **The unit of learning becomes modular.** Mastering learning objectives provides a sense of progress and accomplishment. Students that change schools in the middle of the semester gain value for their work that was completed even if they didn't complete the entire course. This is particularly important given the high mobility of students in low-income neighborhoods.
- **Learning expands beyond the classroom.** Students may learn outside of the classroom with informal and formal learning opportunities, digital learning, the help of youth programs and mentors, or independently, in order to practice and apply the skills and content of a clear learning objective.[2]

DESIGN PRINCIPLE 3: Assessment Is Meaningful and a Positive Learning Experience for Students[3]

In a competency-based model, the traditional approach to assessment and accountability "of learning" is turned on its head with assessments "for learning." Formative assessments are aligned with learning objectives. Students receive immediate feedback when assessment occurs. This is used to encourage students to return to difficult concepts and skills until they achieve mastery. It is essential that assessments are student-centered in which students are assessed on material with which they are familiar.[4] In order for competency-based pathways to offer high-quality education, the following must be put into place:

- **Schools embrace a strong emphasis on formative assessment.** The Oregon Education Roundtable claims that "in a proficiency-based system, formative assessment drives instruction and therefore has primacy over summative assessment."[5] Schools will need to provide information management systems to support teachers, including learning management systems that are integrated with student information systems.[6] With the help of sophisticated, integrated information systems, teachers can easily identify where students are struggling, and principals can identify where teachers are having difficulty in helping their students master concepts.
- **Teachers collaborate to develop understanding of what is an adequate demonstration of proficiency.** Proficiency for any specific learning objective and for the competencies required for course completion must be understood and meaningful to the teachers. Teachers must share a clear understanding of what students need to demonstrate before they advance to higher levels.

> *In most school reform efforts the focus is on the schools. The question we typically ask is, "Why aren't schools performing as they should?" Perhaps a key reason we're so dissatisfied with the state of public K–12 education is that we've been asking the wrong question. If we asked instead, "Why aren't students learning?" perhaps we might see things that others have yet to perceive. After all, it's the children's performance that should concern us. The performance of a school is little more than the sum of the performance of its students.*
>
> – "Rethinking Student Motivation," Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson

- **Teachers assess skills or concepts in multiple contexts and multiple ways.** Just as a doctor has many tools for assessing patient needs, teachers will assess proficiency through multiple demonstrations of learning. All of the competency-based innovators who were interviewed suggested that students must demonstrate proficiency multiple times to ensure that they are completely comfortable with the material. Examples of techniques used by innovators to assess student knowledge and level of proficiency included formative assessments, digital learning tools, performance-based assessments, presentations, and peer-to-peer instruction.
- **Attention on student learning, not student grades.** In competency-based approaches, student progress is often categorized in three or four levels that capture 1) mastery or high performance; 2) proficient; and 3) novice or still working toward proficiency. Grades may still be used to rank progress toward proficiency. Essentially, students progress when they have demonstrated A- or B-level work. Students may not progress with a C or lower as they have not demonstrated proficiency.
- **Summative assessments are adaptive and timely.** Students are assessed on the learning objectives (skills and concepts) for which they have demonstrated proficiency. Tests to assess degree of mastery, such as the Advanced Placement (AP) exam, should be available when students have completed courses with proficiency, rather than at only one point each year, so that they may move on immediately to the next level of their studies.

"We need to redefine the way we credential student learning. We learned in Kentucky that when we waived seat-time and began to think more broadly about what constitutes authentic evidence of learning, we unleashed individual teacher's ingenuity to provide interventions on a very personalized basis. The option also helped district leaders implement entire new programs and services that could not have been delivered in the traditional calendar, schedule and constraints of the Carnegie unit. With implementation of the common core, we have unprecedented opportunity to focus on measuring each individual student's progress towards known goals. We are moving towards a clear vision of what success means and that vision of success is not defined by time or place. So, it's time to put these two concepts together and begin shifting policy to next generation systems of learning that are performance and competency-based."

– Gene Wilhoit, Council of Chief State School Officers

II. Insights from Pockets of Innovation

The scan of the field found a limited number of innovators who have fully developed competency-based models but signs that there is a ripple of interest across the country. Evidence from the early innovators including Diploma Plus, Chugach Alaska School District, and Florida Virtual School are encouraging. Yet, there is a dearth of formal documentation, research, or evaluation on competency-based approaches.[7] Many of the claims of the value of competency-based learning are not yet substantiated. Thus, it is safe to say that we are in the early stages of the innovation curve, with signs of early adoption beginning to take hold. A concern is that as districts and schools try their hand at competency-based approaches, they will have only a handful of knowledgeable technical assistance providers, most in relatively early stages of developing their organizational capacity.

This investigation relied heavily on interviews, site visits, and a survey to update the literature in the field of competency-based pathways in K–12 education. In the discussion below, the key findings are organized to expand the current body of knowledge, providing insights into the barriers and opportunities arising in the early stages of innovation and adoption. The first section explores the dynamics that are leading to competency-based innovations. The second focuses on implementation issues raised by innovators.

A. Drivers of Innovation

1. Overcoming Inequities Produced by a Time-Based System

Innovators consistently cited a growing frustration with stagnant levels of low achievement and seeing students fall farther behind as their inspiration and motivation for exploring competency-based approaches. There is agreement among the innovators that the time-based system is holding students back from accelerating their learning while also ensuring that others who are chronically behind will never master the materials needed to prepare them for college. Competency-based approaches confront the systemic elements that are holding inequity in place, contributing to a deeper understanding of the larger underpinnings of time-based policy and funding models.

Farrington and Small in *A New Model of Student Assessment for the 21st Century*[8] outline the ways in which the time-based system, resting upon the Carnegie unit, ensures that a portion of students will begin to fall behind, and often out of school. Students and teachers have to race the clock to

complete course materials with no opportunity or incentive to improve performance after grades are given. Students earning C's and D's may progress in school and even earn their high school diploma but may not be prepared for post-secondary education or training, requiring developmental education. For students that prematurely leave school, the disincentives to re-engage in learning are looming; woefully behind in skills and credits, they face years of seat-time at the point they are near to aging out of the K–12 system. Furthermore, those that re-enroll with renewed motivation find that their failures are locked into their grade point average. According to Farrington and Small:

> *Under this traditional model, a small proportion of students in urban schools do well, but significant numbers fail to graduate, and the majority of those who do are inadequately prepared for college or the workplace. Other factors, too, affect student achievement in urban schools, such as the quality of teaching and instructional leadership, characteristics of school culture and organization, and the availability of adequate resources. But even in a well-resourced classroom with a highly qualified teacher in a caring and challenging school environment, a heterogeneous group of students will be stratified in their achievement when learning time is held constant. Those who demonstrate achievement above a bare minimum level will be awarded course credit at the rate of one Carnegie unit per 120 hours of seat time, whether or not they have mastered requisite skills and content knowledge. Final letter grades will be communicated on report cards, permanently recorded on student transcripts, and calculated into grade point averages.*

At a time in which our economic health and national security are riding on our ability to lift up our education system, we simply cannot afford to continue without questioning the constraints of the time-based system.

2. Growing Demand

There are four forces that are driving interest in competency-based approaches.

- **Online Learning:** Online learning is becoming increasingly in demand as schools seek to level the playing field for all students to access high-quality courses. Demand for online courses is primarily driven by the unavailability of courses (40 percent of high schools do not offer Advanced Placement courses) and by the necessity to meet individual student needs.[9] Thirty-two states have state virtual schools delivering online courses to students in any district in the state.[10] In the United States, 75 percent of school districts offer online courses[11] in K–12 education, and student enrollments are growing at a rapid pace of 30 percent annually. Online learning is also expanding options for credit recovery and helping to address teacher shortages in science, technology, engineering, math (STEM), and foreign languages. Many of the benefits of online learning are lost due to reliance on the time-based systems. Thus, iNACOL has identified expanding competency-based policy to drive student-centered, next generation learning models as their highest priority on their agenda.
- **Multiple Pathways to Graduation:** Districts across the country are establishing multiple pathways to graduation by increasing the number of options for students that are over-aged and under-credited, those missing a few credits to graduate, and those that left prematurely due to life circumstances or the need to work.[12] Students in multiple pathways schools and programs tend to be older and are confronted by policies that determine when they will

age-out of the K–12 system. They simply cannot afford the seat-time required by the Carnegie unit. Even still, there are waiting lists across the country for alternative educational opportunities designed to accelerate progress toward graduation.

- **State and District Budget Deficits:** Given the economic downturn, across the country leaders are questioning the costs built into the time-based systems such as remediation, summer school, and developmental education at the college level. Thus, reforms that offer greater cost-effectiveness are gaining more attention.
- **Low-Performing Schools and Districts:** As our country takes on the challenge of improving the lowest performing schools, there is a growing concern that the models proposed by the U.S. Department of Education are difficult to implement in rural areas. Both Chugach (rural) and Adams County 50 (suburban) turned to competency-based reforms that replaced the inequities of the time-based practices to find solutions to the low performance in their districts.

Whether this growing interest kindles real demand is dependent on policy, financing, and public will.

> *"We were standing on a platform that was burning out from under us. What we were doing was not working for us. We had dismal results in all areas of student performance.*
>
> *In the Reinventing Schools Model… There's nobody that can get through with a "C". We call that 'developing'—they're still working on it. When they move to a proficient or advanced level, then they're allowed to progress to the next level. So that's why we feel our system is a little more accountable: You can't slide through with low scores."*
>
> – Robert Crumley, Superintendent of Chugach School District (CSD) in Anchorage, Alaska[10]

3. Exploring Multiple Points of Entry

Innovators are finding a number of starting points for introducing competency-based models into the education system. Yet, there is inadequate research to determine if any one starting point is more valuable than another. Examples of the innovators working at different entry points are highlighted below.

Classroom Practices

The standards-based practices promoted by Marzano Research Laboratory can be easily employed by teachers in traditional schools. These practices include the design of educational objectives with appropriate tasks to assess student learning and standards-based grading. In addition, there is growth in the use of adaptive software tools that are introducing a competency-based approach with content and embedded assessments within classrooms.

School Design

At the school level, there are a number of models that are being replicated or adapted including

Diploma Plus, Young Women's Leadership Charter School, the Big Picture Learning schools, and Performance Learning Centers. In Oregon, six districts are working to integrate competency-based practices into their schools. One state, Florida, has been able to shape the policy environment to establish a performance-based virtual school.

District Reforms

At the district level, Chugach has demonstrated results and their leadership has formed an independent nonprofit, the Reinventing Schools Coalition (RISC), to coach and support other districts like Adams County 50, Colorado, and Kansas City, Missouri.[13]

State Policy

There is activity at the state level to expand policies to offer credit options to seat-time. New Hampshire and Oregon are leading the way in formulating state policy that focuses on creating fully developed competency-based systems. Federal leverage through the Race to the Top program has prompted some scattered activity for states to include competency-based approaches in their strategies, although some efforts appear to be shallow.

Federal Policy

The U.S. Department of Education has been referencing competency-based approaches in their major grant competitions. Although none were successful, at least four proposals for the i3 grant competition included competency-based approaches.

At this time, the geographic regions where the pockets of innovation are taking place are rarely overlapping. Certainly, each of the points of entry provides insights into how a comprehensive competency-based system might operate. Yet this isolation makes it difficult to build knowledge or easily begin to align practice and policy.

B. Keys to Success

1. Designing Effective State Policy Frameworks

There are three important lessons to be gained from the review of state policy highlighted on page 16. First, creating waivers for Carnegie units is an important first step, but it is inadequate for opening up innovative space for competency-based approaches to take root. It assumes that a competency-based approach is created by simply eliminating seat-time. As discussed, competency-based pathways are focused on student learning, not just credits. Both New Hampshire and Oregon have been working with districts and schools to uproot the traditional system and replace it with one that is focused on learning.

Second, it is clear that simply changing policy at the state level is not enough to catalyze competency-based systems. In Oregon, there was little uptake on the credit options until the Department of Education provided substantial leadership by establishing a Credit for Proficiency Task Force and invested in pilots. New Hampshire's strategy includes setting up regional networks to provide technical assistance to districts and schools. States will need to create intentional strategies to work in partnership with districts and schools if they are to effectively expand competency-based practices and pathways.

Third, enabling credit flexibility is a critical step but most likely one of the easier pieces of policy infrastructure that will need to be in place. The knowledge generated by the Council of Chief State School Officers' initiative on next generation learning promises to hold valuable insights into how information and accountability systems will need to be adjusted, how funding structures are modified, and what quality control methods are needed to ensure that there is a shared understanding of proficiency.

The U.S. Department of Education can play a catalytic role in helping states shape comprehensive policies to support competency-based pathways and create the innovation space by integrating competency-based practices as a core element of the Elementary and Secondary Education Act (ESEA). It will be important to engage advocates for high-needs students—including special education, English language learners, and students off-track to graduation—by ensuring that students have the support they need without necessarily relying on regulations that are designed in response to the traditional time-based system.

In summary, state policymakers should eliminate barriers to competency-based systems immediately. Ensuring that students are not held back by the rigidity of the Carnegie unit is an essential first step. In addition, there must be a vigilant focus on quality control so that poorly implemented competency-based approaches do not undermine our nation's efforts to improve achievement. Finally, districts and schools need to be supported in creating the independent space required for innovation. It is not recommended that states boldly try to replace the entire traditional time-based system with a competency-based system, as we are at such early stages of understanding how a full system will work.

State Policy: Opening the Door to Competency-Based Pathways

In interviews, state policy regarding the Carnegie unit is often referred to as the greatest barrier to competency-based pathways. There is a fair amount of activity at the state level to address this issue. There appear to be three models by which states are moving forward: waiver, credit flexibility, and redesign.

Waiver: Most states have created a minimum policy that provides a waiver for students to get credits for competency, rather than the time-based Carnegie unit. Idaho is an example of a state depending on a waiver process to allow competency-based credits. Their policy states that one credit shall equal sixty (60) hours of total instruction. School districts or local education agencies (LEAs) may request a waiver from this provision by submitting a letter—signed by the superintendent and chair of the board of trustees of the district or LEA—to the State Department of Education for approval. The waiver request has to provide information and documentation that substantiates the school district or LEA's reason for not requiring sixty (60) hours of total instruction per credit.

Credit Flexibility: Increasingly, states are creating policies that enable credit flexibility. This has primarily been in response to the expansion of online learning and credit recovery. These policies tend to provide districts with the capacity to use competency-based assessments instead of seat-time with little guidance for ensuring quality or consistency across the state. It is up to the districts to take advantage of this enabling policy to move beyond limited credit recovery to competency-based systems that are focused on learning.

Alabama created a seat-time policy in 2009 in the context of improving high school graduation rates. The policy states that "one credit may be granted in Grade 9-12 for required or elective course consisting of a minimum of 140 instructional hours or in which students demonstrate mastery of Alabama course of study content standards in one-credit courses without specified instructional time." Similar language was written for one-half credit and 70 instructional hours. Currently, nearly 50 percent of the districts in Alabama are taking advantage of the enabling policy to provide credit recovery and/or credit advancement.[14]

Kentucky's state policy empowers schools to award competency-based credits if the school site-based council has developed criteria for determining proficiency. In Kentucky, there are efforts to create competency-based pathways in foreign language, including discussions on a graduation requirement that every student must demonstrate a minimum proficiency to align with University of Kentucky's admission criteria.

Ohio's Credit Flexibility policy is much broader, designed to include distance-learning, afterschool programs, internships, and community service. The policy is constructed as a waiver, with districts seeking state approval. Local boards will govern their credit flexibility policies, and teachers are empowered to award the credits. The policy is designed for high school students, providing multiple ways to gain credit, including seat-time, testing out, or demonstration of proficiency. It also allows for simultaneous credit in two areas, as well as partial credit.

Since 2002, Oregon has enabled districts and schools to use proficiency-based approaches through an administrative rule for credit options. In 2004, the Department of Education initiated pilot programs. More recently, the Department of Education has updated its policies and has begun investing in pilot programs in six districts. In 2009, the policy was expanded with the expectation that districts will offer students the option of seat-time or demonstration of proficiency.

Redesign: New Hampshire has taken the boldest step in declaring a full high school redesign, replacing the time-based system with a competency-based system. New Hampshire's comprehensive approach is designed around three themes: 1) personalization; 2) students as active learners; and, 3) choice and flexibility for where and when learning occurs. It eliminates the Carnegie unit, replaces it with a competency-based system, and allows students to earn credit toward graduation outside of traditional classrooms. The Concord Area Center for Educational Support (CACES) is taking a leadership role in supporting districts and schools as they redesign, helping to clarify the competencies students are expected to master. In addition to academics, there are cross-cutting competencies such as communication skills and problem solving.

2. Application of Knowledge Requires Holistic Set of Competencies

Innovators reinforced the concept that the application of knowledge and skills was integral to a competency-based approach. Jim Schnitz of Western Governors University explained that "competency" contains both the understanding of content and a component of performance. The creative challenge is to ensure that the learning objectives are measurable and that the competencies can be demonstrated. This is more difficult with some areas than with others and is likely to require attention in ensuring quality across all knowledge domains.

The application or demonstration of skills was described differently across the innovators, although they all shared an understanding that competencies needed to integrate academic content and skills with "soft skills" such as critical analysis, creativity, communication, and problem solving. Diploma Plus uses Bloom's Taxonomy to structure their competencies. Adams County 50 had a set of social-emotional competencies to complement the academic standards. Thus, the competencies were often student-centered, integrating strong youth development perspectives.

Following are examples from Chugach's Highland Tech High's Social Environments standards area that apply to history and geography.[15]

Level 1	
Inquisitive Thought and Creativity	Develops questions to focus inquiry and analysis
Information Processing Tools	Summarized information through restatement
Logic and Reasoning Systems	Explores the differences between primary and secondary sources
Understanding Variability and Point of View	Identifies and describes opposing viewpoints
Mastering Action	Forms opinions based on examination of evidence
Level 3	
Inquisitive Thought and Creativity	Identifies and describes times when alternative courses of action would have changed the outcome of events
Information Processing Tools	States relationships between categories of information
Logic and Reasoning Systems	Develops appropriate criteria for comparing and contrasting information
Understanding Variability and Point of View	Compares and contrasts opposing viewpoints
Mastering Action	Forms, expresses, and explains opposing points of view on issues
Level 6	
Inquisitive Thought and Creativity	Develops a creative solution to a current issue based on available information
Information Processing Tools	Analyzes the impact and credibility of information from various media outlets
Logic and Reasoning Systems	Evaluates the lasting impact of primary source documents
Understanding Variability and Point of View	Analyzes opposing viewpoints to determine a course of action
Mastering Action	Implements an action plan to influence those in power regarding a contemporary issue

Innovators of competency-based approaches have designed competencies and levels slightly differently, as well as the tools to support the system. This promises continued creativity and variations as early adopters experiment with the design and tools. Similarly, it may create challenges as practices are lifted into policy.

3. Opportunity to Teach

In *Proficiency-Based Instruction and Assessment,* the Oregon Education Roundtable states, "In a proficiency-based system, teachers flourish as much as students." The results from Chugach reinforce this. After three years of competency-based approaches, Chugach teachers approached the administration to ask if their evaluations could be based around student performance instead of traditional one-size-fits-all assessments that were unrelated to their competency-based teaching models. In Chugach, using competency-based learning significantly increased satisfaction and greatly reduced teacher turnover rates. Before moving toward competency-based learning in 1994, Chugach school district had a 55 percent annual rate of teacher turnover during the previous 20 years. After moving toward competency-based learning, between 1995 and 2000, teacher turnover dropped to 12 percent annually.[16]

Anecdotal evidence suggests that some of the by-products of competency-based approaches are increased teacher engagement, a shift in professional culture, and changes in the teacher's role.[17] The process of teachers assessing student performance on explicit learning topics, becoming familiar with examples of proficiency, and evaluating master in advanced performance requires teachers to talk with one another about their own expectations, both horizontally with their grade-level peers and vertically. Those we interviewed said that simply focusing on learning and helping students created greater job satisfaction.

Yet these early innovators all engaged teachers early on, requiring their support before moving into implementation. One of the risks of any top-down policy initiative is that teachers will perceive it as a burden rather than an opportunity to rediscover their joy of teaching.

"Once we free ourselves from a factory model and the time practices handcuffed to that structure, we must rethink such unquestioned time-honored practices as:

- *Grouping kids in grades;*
- *Grading as a way to communicate what has been learned;*
- *Moving kids around based on bell schedules;*
- *Separating subjects divided into discrete time blocks; and,*
- *Connecting high school graduation with Carnegie units.*

Schools can no longer be expected to change and still look the same. It's time to get away from the legacy of the factory that imprisons us, as educators, as well as the students we teach. We know that 'a cage for every age' is an archaic and dysfunctional way to group students. It's for us to start questioning the sacred rituals of schools and school systems. We can use time as the catalyst to do just that."

– Dr. Ellen Bernstein, President of the Albuquerque Teachers Federation, Testimony at the U.S. Senate Committee on Health, Education, Labor & Pensions Field Hearing on Innovative Approaches to School Time, 2010

4. Cultivating a Culture of Continuous Improvement

Competency-based approaches enable meaningful continuous improvement processes at a depth that has never before been seen in education. Case in point, Chugach School District received the Malcolm Baldrige National Quality award for organizational excellence in 2001.

There are two reasons why continuous improvement suddenly takes root in competency-based systems. First, competency-based approaches require a heavier emphasis on formative assessment and responsiveness when students are struggling. With a focus on whether or not students are mastering the skills, teachers become engaged in exploring new ways to help students.

Second, by breaking courses into discrete learning objectives and monitoring student learning trajectories supported by a student information system, principals are able to gather indicators of progress in a much more granular and timely way than end-of-course grades or summative testing. This allows principals, as instructional leaders, to keep an eye on which areas teachers are having difficulty in supporting their students or identify any schoolwide patterns that are causing students to stumble. Peer support and professional development are then targeted toward those areas.

Adams County 50 provides a good case study. Dr. Copper Stoll explained that once they started down the path, the culture of continuous improvement required them to "turn over rocks," bringing more issues to light. Very quickly, the district began to reallocate resources around learning management goals. In order to build on assets at the elementary school level, some teachers began to specialize in math so that all students could have a chance to work with the most effective teachers. They discovered that *Everyday Mathematics*, which depends on spiraling, is a mismatch with their standards-based approach. Thus, they are searching for curriculum that matches their learning objectives.

They are also beginning to rethink career ladders for teachers. They are considering creating opportunities for master teachers, interdisciplinary teachers, and instructors that are skilled in differentiated instruction.

> *"Competency-based is the antithesis of social promotion. A competency-based pathway creates more equitable outcomes for students because each is allowed to show evidence of their knowledge and their progress in defined competencies through authentic and student-responsive assessments. In a system like Diploma Plus, students learn to own their learning, rather than inherit it (or not) from their instructors as in many traditional systems of learning. Students, teachers and families can be more assured that students have mastered content, because they must demonstrate competency in that content at the pace appropriate for each."*
>
> – Akili Moses Israel, Diploma Plus

If a district embraces competency-based education as its overall reform model, it must be prepared to establish a culture of continuous improvement. Without it, there is always the risk that flawed implementation will lead to low achievement. A full, competency-based approach is a re-engineering overhaul that requires revisions, modifications, and sometimes a complete reworking of each component of a district's operations. This doesn't have to be done all at once. Yet leadership will need to be prepared to offer strong change management.

5. Engaging Community Early and Often

All of the interviewees suggested that engaging parents and students in the implementation of a competency-based approach was much easier than anticipated. The shared experience of mastering the initial levels of video games before progressing to the next is easily translated into competency-based approaches. It's a message that resonates with students. Demonstrating proficiency on learning objectives is strikingly similar to earning merit badges in camp or after school.

The districts that converted to competency-based models such as Chugach and Adams County 50 heavily emphasized the importance of fully engaging all stakeholders: parents, students, teachers, and the broader community. Both districts invested in community engagement early on with presentations in town-hall-type meetings to garner feedback on what learning should look like for the 21st century and to identify the competencies for college and career readiness. Adams County 50 took two years in the engagement process, not moving forward with implementation until they had 80 percent of the teachers supporting the reform.

> *"The achievement gap is a product of a time-based system. The moral purpose that drives competency-based approaches is proficiency for all."*
>
> – Dr. Copper Stoll, Adams County 50

One of the challenges was to prepare students and parents for the implications of having graduation dependent on mastery of a set of competencies. Schools would no longer grant diplomas to students that had been skating by with mediocre grades and large gaps in learning. Adams County 50, avoiding having to explain to parents that their students needed to remain in school longer while they completed their high school education, began their rollout of competency-based reforms at the elementary school level.

III. Challenges in Designing Competency-Based Pathways

There is no doubt that there are multiple challenges to expanding competency-based pathways. Leadership, vision, and creativity are required to reconfigure the education system so that it is designed for success for all students. These challenges need to be confronted head-on in order to construct high-quality policy platforms to support competency-based pathways.

CHALLENGE 1: Protecting High Levels of Proficiency

There is nothing inherent in competency-based approaches that guarantees that disadvantaged children will achieve at high levels. Jill Powers Kirk of Oregon Business Council expressed the concern that the biggest risk is that teachers set proficiency on learning objectives too low. Or if educators direct resources toward students who are progressing most rapidly and away from students who are struggling, the current achievement gaps would continue. There is also a concern that the achievement gap may expand, even if all students are achieving at higher levels. In lifting the ceiling on how rapidly students may advance, the actual value of the economic, cultural, and social capital of higher-income families may produce higher learning gains. Dinner-table conversation, exposure to careers and interests of friends and family, and summer enrichment activities are likely to generate motivation, background knowledge, and skills that accelerate learning. Upper-income students with multiple enrichment activities may be able to speed through courses as they apply concepts and knowledge learned outside of school.

Even so, competency-based pathways hold great promise as they are designed for success, not failure. Thus, vigilance is required to protect against unintended consequences and mismatched incentives. Florida Virtual School (FLVS) demonstrates a solid understanding of the dynamics of a competency-based system. FLVS has open enrollment so that students can enter a course at any time and complete the modules at their own pace. In a personalized learning environment, teachers are able to—and expected to—intervene quickly when students start to fall behind or struggle with a concept. Finally, the performance-based funding model aligns incentives around rapid response when students show the earliest signs of disengagement. It may be that performance-based funding is a necessary ingredient to ensuring high-quality competency-based practices.

One of the more controversial aspects of competency-based approaches is when schools decide to group students based on their level of proficiency so that teachers can work more intensively with

them. At first glance this may look like a form of tracking. Yet, within competency-based systems, students have the opportunity to advance in some topics while still taking extra time to progress in others. Furthermore, there is no gate or test to place students in a certain group, and students can easily be moved between groupings as they advance, especially with the opportunities provided by online learning. Yet to be on the safe side, it is important to include experts in special education and English language learners (ELL) in the early design of competency-based approaches to ensure that tracking does not creep into the practices.

The Oregon Proficiency Project[18] is building substantial knowledge on the changes in the classroom that nurture a high-quality, competency-based program. It is also in the process of defining the attributes that are required for a competency-based approach at the classroom, school, district, and state levels. Oregon's efforts are forming an initial base of knowledge to guide districts and schools in establishing excellence in competency-based practices.

CHALLENGE 2: Re-Engineering for Student Learning

There are four areas that were raised in conversations about the challenges of re-engineering for competency-based systems. First, in our current policy environment, resources are being directed toward information systems that are designed around accountability and compliance. The question confronting competency-based efforts is whether they will be able to redesign management information systems around student learning. Are we going to continue to simply digitize current practices such as online grade books or are we going to step back and redesign the practices and the supportive management information system so that "learning maps" will document student progress in a way that is meaningful to students as they transition between schools, teachers, and out-of-school learning opportunities? (See Challenge 3 for more on this topic.)

Second, given the highly interdependent nature of the education system, a full implementation of a competency-based pathway is likely to require minor and major revisions throughout the system infrastructure.[19] As we move forward, it will be important to determine the types of modifications needed, the complexity and cost of doing so, and the key leverage points in the system. For example, unwinding our education system from the Carnegie unit will likely have implications for budgeting, planning, and union work assignments and contracts. Issues of aligning student learning with summative assessments are already arising. Can students take the high school exit exams at the time they complete the level of work upon which the assessment is based, whether that is in eighth grade or twelfth grade, spring or fall? Can students taking an online AP course complete the course and take the test soon after so that they can progress onto higher-level college courses, or do they have to wait until May to take the exam?

Third, competency-based approaches may change the way we think about and provide supplemental and enrichment services. With response to intervention (RTI) built directly into the classroom practices, intervention models and regulations for ELL and special education may need modification. Summer school might be designed for students to work on

> *"Proficiency approaches are the leading edge of a set of practices that result in greater effectiveness and efficiency."*
>
> – Jill Kirk Powers, Oregon Business Council

learning objectives with which they are struggling rather than having to sit through entire courses again. Or students may continue to progress during the summer without participating in formal schooling.

Finally, the requirements needed to run two systems simultaneously—developing innovative competency-based metrics while also trying to improve the traditional system—may be too cumbersome to be realistic. It appears that the burden will fall heavily on the school district. The complexity of district management will increase if they are to juggle two sets of classroom grading practices, semester marking periods, permanent letter grades and grade point averages, Carnegie units/course credits, and high school transcripts. Going forward, it may make sense for districts to create the innovative space to run competency-based efforts separately for the short run, to allow the changes to take hold and thoroughly digest the ramifications for district policy.

CHALLENGE 3: Integrating Student Information and Learning Management Systems

Although competency-based approaches have been used in the past, the advances in information technology are enabling it for the first time to become truly operational. Competency-based systems generate massive amounts of data about student learning. For teachers, the time required to monitor each student's progress in demonstrating competencies at the learning objective level is too burdensome without an easy-to-use system. Without adequate technology, the paperwork involved in competency-based systems can be overwhelming.

> *"… there is far more standardization than customization in schools. Schools teach using a monolithic batch system. When a class is ready to move on to a new concept, all students move on, regardless of how many have mastered the previous concept (even if it is a prerequisite for learning what is next). … Both the bored and the bewildered see their motivation for achievement shredded by the system."*
>
> – "How 'Disruptive Innovation' Will Change the Way We Learn" by Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson. *Education Week*, June 4, 2008.

Two concerns were raised about the importance of the information systems that are needed to support competency-based pathways. First, states are continuing to expand and refine their accountability systems without taking into consideration the implications of competency-based pathways. Unless the architecture of the system is changed, the data systems will be aligned to capture "grade levels" and courses rather than competencies attained. The tremendous resources that are being absorbed in these data system modernization efforts are aligned around the traditional time-based system rather than thinking about the specifications need for accountability or next generation learning.

Second, competency-based approaches require technology to be relatively sophisticated, which is not always easy to do given the technological infrastructure and resources in some districts. Jim Schnitz of Western Governors University explained that a high-quality, competency-based approach required linking the architecture of two information systems: 1) a student information system of data that

supports principals, teachers, and students; and 2) a learning management system that maintains curricula, standards, and competencies. Thus, by integrating student information systems and learning management systems, individual student learning plans can be developed, the student learning trajectory monitored to ensure progression, and a deeper understanding of what helps the student to succeed identified. As knowledge is gained about student learning styles, interests, and competencies attained, the data system(s) of the future will be able to provide a view into each student's "learning genome map" and their progression toward college- and career-ready standards.

Consistently throughout the interviews, the use of technology to manage data around individualized student learning was noted as critical to managing the processes, learning objectives, new assessment models, rubrics, and performance data. Innovators are developing or adopting their own systems, including DART (Data Analysis and Reporting Toolkit), E-ducate, and DiplomaPlus.net, adding components along the way to better support teachers and principals. As an example, Adams County 50 is working with E-ducate to design a student information system that is transparent so that parents and students can monitor progress, while simultaneously encouraging students to continue their learning over the summer and in extracurricular activities.

CHALLENGE 4: Aligning Incentives for Students, Educators, and Communities

One of the underlying assumptions of next generation learning is that it creates a virtuous cycle. Students are empowered; their intrinsic motivation is increased. Teachers take on the role of coaches, further supporting students with greater personalization. Students feel respected and cared for, experience success, and are further motivated. The challenge is to align the incentive structures of policy, accountability, and funding to support customization.

Given that competency-based approaches are designed to produce outcomes in student achievement, reward systems should also be focused, at least partially, on attainment. For example, Florida Virtual School is funded based on successful completion and student performance. Teachers have very clear incentives to respond to students upon the first signs of disengagement. In the United Kingdom, schools are funded per pupil; at level 16, schools are funded based on individual students' credit attainment and lose money if students do not successfully earn credits. In contrast, in the United States, federal, state, and local policies fund a time-based system, do not reward for attainment, and direct policy through a compliance model, focusing on school-level (not student-level) performance. Yet, redesigning funding is filled with its own pitfalls and obstacles.

Competency-based pathways will also raise the question of how to engage and reward the organizations or people outside of the classroom that help students progress. This includes providing access to the current learning objectives, funding, and giving "credit" or recognition for effectively helping students learn. If students practice their skills in an after-school program, should that program receive any recognition or funding for outcomes obtained? After-school programs and summer camps may design around student progress, yet the adults may not be certified teachers. Students may take advantage of digital tools or open education resources such as iTunes University and HippoCampus. Will we be comfortable recognizing increased skills regardless of where students developed them?

CHALLENGE 5: Nurturing Organic Expansion and Innovation Space

At this stage, the growth of competency-based programming will most likely be organic. More innovators and early adopters are expected to enter the field as competency-based policy platforms are established, other innovations will be modified to include competency-based practices, and some early adopters will branch off with alternative approaches. In addition, teachers will become increasingly more familiar with the main concepts through Marzano's training and others that promote standards-based practices. At this point, top-down approaches may be difficult primarily because of the small pool of innovators and limited technical assistance capacity. Furthermore, the policy and operational changes that need to be made at the district level have not been fully explored or documented. New Hampshire's approach in establishing regional technical assistance to support districts in their high school redesign around competency-based learning will offer insight into how to invest in implementation. CCSSO's project to support states in developing Innovation Labs will help promote next generation learning design specifications for student-centered, performance-based models—the heart of competency-based pathways.

It is equally important to recognize the need for innovation space so that new efforts and adaptations may continue to develop their new approaches. It is no coincidence that two of the best examples of competency-based schools were designed in protected innovation space and protected by policies that allowed them to experiment without constraints.

- Florida Virtual School was founded in 1997 with a $200,000 "break the mold" planning grant. It was designed from its inception to create an out-of-the-box, student-centered learning model. With individualized instruction, students move at their own pace through a competency-based learning progression. Using a performance-based funding model in which funding follows the student to the level of course enrollment, students have flexibility in enrollment and completion of courses.
- The Western Governors University started in 1995 as a joint venture by the members of the Western Governors Association. With support from philanthropy, WGU was able to design from scratch an organizational structure that supported competency-based learning. Rather than the traditional structure of higher education that is organized around academic domains, WGU's dynamic organizational structure is designed around the student. There are three primary divisions: 1) degree programs that coordinate content from providers; 2) assessments that determine how students will demonstrate mastery aligned with industry standards; and 3) student support services, with each student assigned a mentor, to ensure that students are progressing.

Yet, most schools are operating within the traditional policies and have to allocate resources in order to navigate the policy environment. For example, both Diploma Plus and Big Picture Learning had to do independent cross-walks to seat-time requirements for California's A-G courses without any benefit of waivers from the time-based system just to be able to run their competency-based schools. Therefore, if we are going to see an increase in competency-based approaches, we will need to create "labs" or protected space that allow the schools and districts to do fine-tuning of the innovations to see the real value of the model.

In a RISC (Re-Inventing Schools Coalition) system, everyone knows what the instructional targets are and everyone works together to do whatever it takes to get every child to those instructional targets. If it takes a little more time for a particular student, it takes a little more time. If it takes a little bit different strategy for another student, then we do that.

We give extra and external opportunities to any student who is capable of taking advantage of those. We certainly don't insist that students sit in our classrooms if we can find additional opportunities—whether in our district or outside it—to help extend their learning.

– Greg Johnson, Director of Curriculum, Bering Strait School District, from *Delivering on the Promise*

Opportunities for Philanthropic Investments

One of the goals of this project was to develop a strategic framework to support coordination of philanthropic investments. However, in discussions with program officers, it soon became clear that for many foundations their strategies were still emerging. In addition, because foundations use a variety of frames or focal points—including assessments, student-centered approaches, or discrete elements of next generation learning—it appears that the timing is not right for a coordinated strategy.

Yet, there is also an appetite among foundations for making investments that can accelerate knowledge building and support the state and district efforts to adopt competency-based approaches. Thus, an initial set of investment opportunities are outlined, as well as a set of goals to spur discussions among philanthropy. The following recommendations are based on the findings that competency-based approaches are: 1) in the early stages of innovation; 2) being developed through multiple entry points; 3) dependent on a limited number of innovative practitioners and technical assistance providers; and 4) increasingly a focus of discussion as a key to improving education. The recommendations take into consideration Hargadon's four types of capital (intellectual, design, social, and financial) required for innovation in order to establish a catalytic infrastructure to advance competency-based pathways.[20]

Investment Opportunities

Support Innovators and Early Adopters: Most of the innovators and early adopters are developing their models with little philanthropic support. The repercussions may be inconsistent implementation and little formative evaluation to help guide the work. Philanthropic support, especially designed to nurture peer networks, could play a critical role in establishing proof points for competency-based learning. A critical element of this work is to help develop the information systems to support principals, teachers, and students. In addition, technical assistance providers need support to expand capacity and develop sustainable business models.

Generate Knowledge Base: There is very little research on competency-based approaches and plenty of questions. The research agenda might include: 1) cost-effectiveness to determine if there are any benefits; 2) the degree to which disadvantaged students perform at higher levels; 3) the conditions required for high-quality performance; and 4) the implications and benefits to teachers. In addition, understanding if the different ways that learning objectives and the overall competencies are shaped has any implications for learning, school culture, and teacher engagement.

Design Catalytic Infrastructure for Field-Building and Advocacy: At the moment, innovators and policy leaders are working in isolation, without any organizational capacity to support knowledge sharing. Thus, it is important over the next year to create a lean infrastructure to support networking, knowledge sharing, and discussions on the most challenging elements of designing competency-based pathways.

Promote Competency-Based Pathways within Other Education Policy Discussions: As conversations about developing curriculum and assessments based on the Common Core of Standards proceed, it is important that competency-based approaches are taken into consideration.

This could include investing in competency-based innovators to convert the Common Core of Standards into competencies, ensuring that practitioners familiar with competency-based approaches are at the table in developing assessment practices, and moving policy toward performance-based funding with rewards for attainment. Most importantly, with the reauthorization of the Elementary and Secondary Education Act on the horizon, it is critical that policies and programming have the flexibility to make room for next generation learning.

Proposed Organizing Goals to Drive Investment Choices

By the end of 2016:

- Federal education policy will be upgraded to include attention to and support for next generation learning including competency-based approaches.
- All states will have created flexible credit options and three states will have developed comprehensive competency-based policies, including strategies to support districts, to complement the traditional system.
- Twenty-five percent of districts will have established competency-based pathways, including but not limited to access to advanced and specialized studies through online learning, policies and programming to support students that need more time to attain proficiency, and high-quality alternative education for over-aged and under-credited students.
- There will be adequate research and evaluation of competency-based approaches to inform policy decisions.
- There will be a minimum of ten organizations that can provide high-quality technical assistance to the schools, districts, and states embracing competency-based pathways.
- The Common Core of Standards has been translated into competency-based models with measurable learning topics.

Questions for Discussion

- Are these suitable goals for driving investments across foundations? What needs to be added or changed?
- What federal, state or philanthropic investments are currently underway or emerging that contribute to reaching the goals?
- What are potential investments that could be designed for co-funding that would expedite reaching the goals?
- How can foundations ensure that diverse voices will be heard, especially those that bring critical insights?
- How can foundations monitor progress towards the goals?

IV. Concluding Remarks

The rapid decentralization that is shaking industries across the globe, so well described by Thomas Friedman in *The World Is Flat*, is now challenging fundamental aspects of our education system. The application of technology is spawning new innovations daily, such as adaptive instructional software and assessments, mobile smart phone applications, and digital content. The success of next generation learning models is enabled by technology, especially through powerful online and blended learning, sophisticated management information systems, and the much-needed data analytics that support student learning trajectories. With access to timely information on student progress, teachers, schools and districts can improve their effectiveness in responding to the educational needs of all the children in their community.

The impact for students is enormous. Today's students were born into a digital age. The positive evaluation of blended learning, in which students are spending part of their learning time in online environments, is generating even greater interest in making online learning available.[21] Students will have the ability to engage in their studies at times that suit them best and to access a greater diversity of courses. Florida Virtual School found that Saturday night was one of the busiest times for students to be active in their online courses.[22] As we continue down this road of technologically enhanced education, we can soon expect to see personalized models such as the School of One in which students have access to a range of modes of learning that respond to their unique learning styles and interests.

Competency-based pathways are not a silver bullet; however, they are a critical element for unleashing the power of next generation learning, as well as our children's inherent hunger for learning. Practitioners and policymakers alike will need to be thoughtful in design and implementation so that old practices do not undermine the adaptations of competency-based practices. Yet, by sharing a laser focus on learning, we can redesign our education system around student success, classroom by classroom, school by school, state by state.

As our nation reflects upon the implications of a Common Core of Standards and common assessments, we will eventually come to a fork in the road. One road leads to bureaucratic one-size-fits-all approaches that will strangle teachers and students alike. Another leads to the effective use of community resources, information management systems, and technology to support personalized student learning that will nurture the joy of teaching and learning.

Time-based measures were appropriate in their day, but they are not now when we know more about how people learn and we have access to technology that can help us accommodate different styles and paces of learning. As we move to online learning and learning that combines classroom and online learning, time-based measures will increasingly frustrate our attempts to provide learning experiences that lead to achievement and the pursuit of postsecondary education that our modern world requires. Another basic assumption is the inflexible way we organize students into age-determined groups, structure separate academic disciplines, organize learning into classes of roughly equal size with all the students in a particular class receiving the same content at the same pace, and keep these groups in place all year. . . Technology can facilitate implementation of such a competency-based approach to education.

– National Education Technology Plan,
U.S. Department of Education, 2010

Appendix A: Descriptions of Innovators

Adams County School District 50

4476 West 68th Street
Westminster, CO 80030
303-428-3511
www.adams50.org
www.sbs.adams50.org

In the fall of 2009, Adams County School District 50 (Adams 50), serving 10,000 students, kicked off its conversion to standards-based education. Recognizing that their demographics were changing, with higher diversity and lower income levels, Adams 50 knew they had to find a way to produce higher achievement. They did not begin until they had 80 percent support from their teachers and community stakeholders.

Adams 50 decided to introduce competency-based pathways systemically, starting with elementary school so that high school students would not suddenly be confronted with a situation of not being able to graduate because they had not mastered the required skills and content. Replacing grades with Levels 1–10 that incorporate standards from elementary school through high school graduation, Adams 50 is supporting teachers as they develop consensus on what proficiency looks like. Teachers work together around rubrics to determine when a student's work should be considered emerging, developing, proficient, or advanced. As teachers develop a shared sense of what they need in order to help students to know and do, their interest in getting additional support on how to improve instruction is growing.

To support their standards-based education, Adams 50 is working with E-ducate to create an information system that eases the burden on teachers to enter proficiency levels on each standard and to track student progression. In the next year, they will begin converting the middle schools to standards-based education. Given that it is the first year of implementation, it is too early to tell if Adams 50 is producing results. With careful monitoring, Adams 50 will identify what types of mid-course corrections will be needed. To maintain a culture of openness and learning, Adams 50 has set up a website and wiki to make it easy for parents, students, and teachers to access information.

Chugach School District

9312 Vanguard Drive #100
Anchorage, AK 99507
907-522-7400
www.chugachschools.com

In 1994, the Chugach School District, serving 214 students over 20,000 square miles in impoverished communities, began a fundamental redesign of how they would educate their students. With the courage to confront the fact that 90 percent of their students could not read at grade level and only

one student in 26 years had graduated from college, Chugach focused their mission on ensuring that all students learn to high standards.

The district engaged the community in establishing a performance-based approach, developing standards in ten content areas, new assessments, and modified reporting mechanisms. Within five years, Chugach School district saw the following results:[23]

- Over a five-year period, average student achievement on the California Achievement Test rose from the bottom quartile to the 72nd percentile.
- The percentage of students participating in college entrance exams rose from 0 percent to more than 70 percent by 2000.
- Between 1995 and 2000, teacher turnover was reduced to 12 percent; in the previous twenty-year history of the district, turnover was 55 percent yearly.

Chugach's transformation gained them national attention, including the prestigious Malcolm Baldrige National Quality Award for organizational excellence. Members of the team that led the redesign have formed the Re-Inventing Schools Coalition (RISC) and are guiding other districts across the country through the process of converting to a competency-based approach.

Diploma Plus

89 South Street, Suite 803
Boston, MA 02111
617-443-0050
www.diplomaplus.net

Diploma Plus was developed as a response to the alarmingly high dropout rate and barriers to post-secondary success for underserved youth, and the inadequate supply of high-quality alternatives to traditional high schools. Launched in 1996 as a 100-student pilot program, Diploma Plus now serves over 4,300 students in 29 small alternative high schools and programs in Massachusetts, Rhode Island, California, Indiana, Michigan, New York City, Newark, Baltimore, Nashville, and Denver.

Diploma Plus opens small standalone schools and small learning communities built on the DP Four Essentials for success: a performance-based system, a supportive school culture, a future focus on college and careers, and effective supports for teachers and schools. DP students are placed into and promoted through three distinct Diploma Plus Phases (Foundation, Presentation, and Plus) that allow students to learn content and skills at the appropriate level, regardless of their age or previous credit accumulation.

DP Schools provide curriculum, instruction, and assessments that are built around defined competencies and that focus on knowledge, skills, and understandings. Students develop meaning at their own pace and are placed, promoted, and graduate according to their demonstrated learning rather than seat time, age, or credit accumulation. DP offers its affiliated schools an information system, DiplomaPlus.net, which allows them to track student progress in this competency- and performance-based system.

Florida Virtual School

2145 Metrocenter Blvd., Suite 200
Orlando, FL 32835
407-513-3587
www.flvs.net

The Florida Virtual School (FLVS) is an accredited, public, online e-learning school serving students in grades K–12. It is based in Orlando, Florida, and governed as a local education agency (LEA) providing supplemental online courses and services to students in Florida and nationwide.

FLVS embodies the concept that competency-based approaches collapse the traditional notions of time, including the school calendar, schedules, and length of time to complete a course. FLVS has a rolling enrollment policy that includes a pacing guide, which allows as little as six weeks or as many as twenty-six weeks to complete a course. FLVS can be used by districts as a response to intervention; if a student is halfway through a traditional course and it appears they will fail the course, they can enroll in FLVS and complete the course with a clear focus on the learning objectives. FLVS has a strong culture of student-centered learning and trains every teacher to provide individual instruction and flexibility in pacing.

In 2003, the legislature passed a law creating a performance-based funding model. FLVS receives full funding for each student's successful completion of a course. This funding model required a learning management system that was integrated with a competency-based student information system in order to track progressions toward completion. This deeply integrated, student-centered approach allows for an individualized learning plan for every student in every course. The information systems capture relevant data and have an e-portfolio for submitting and storing student work, learning objectives, and outcomes.

Western Governors University

4001 South 700 East, Suite 700
Salt Lake City, UT 84107-2533
801-274-3280
www.wgu.edu

Western Governors University (WGU) is an accredited, not-for-profit, virtual university offering competency-based degrees at the associate, bachelor, and master's levels. Founded in 1995 as a joint venture by the members of the Western Governors Association, WGU serves over 19,000 students from all fifty states.

WGU offers courses in business, information technology, health, and education. WGU's competency-based approach to online education is personalized with the length of time varying for students to complete a program. WGU uses a number of assessments including tests, projects, papers, and practical demonstration of a required skill. Students demonstrate mastery across a number of domains including general skills, as well as those specific to the degree program. Each student has a mentor who serves as an academic advisor and helps students manage the online environment.

WGU defines the roles of faculty and administration differently than traditional universities. Students are assigned mentors who have the primary relationship with the students throughout their program. A program council for each degree program brings together experts from the program field who approve the competency-based degrees and certificates. The assessment council is responsible for reviewing the credentialing assessments to ensure that the applications are valid measures of the competencies related to a given degree or certificate. WGU contracts with education providers for instructors for the online courses. All assessments are objective and proctored. Student work is assessed by graders. Program coordinators are responsible for maintaining the content working with councils and coordinating with the assessment department to ensure effective mechanisms to determine student performance on competencies.

Young Women's Leadership Charter School

2641 S. Calumet Ave.
Chicago, IL 60616
312-949-9400
www.ywlcs.org

The Chicago Board of Education awarded a charter to the Young Women's Leadership Charter School (YWLCS) in 1999. Soon after, YWLCS developed a new method of awarding course credit using competency-based assessments. Throughout the year, YWLCS teachers evaluate student work and grant students a proficiency rating of High Performance, Proficient, or Not Yet Proficient for each key learning objective associated with the class. Students earn credit for classes in which they have demonstrated that they are at least 70 percent proficient. If students demonstrate a competency after the end of the year has passed, future teachers can update students' proficiency ratings in the data system to reflect what they have learned since the conclusion of a course.

Working with the Equity and Achievement for Standards-Based Learning Institute (EASL www.easlinstitute.org), YWLCS developed an information system that supported teachers and students in developing proficiency and preparation for college. A non-selective public school that serves primarily low-income minority students, YWLCS graduated 79 percent of its students in 2005, a figure 1.5 times higher than Chicago Public Schools' overall graduation rate of 52 percent that year. Of the students who graduated in 2009, 90 percent of YWLCS were accepted to college or another post-secondary option.

Appendix B: Resources

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Appendix C: Interviews

Sharon Arnott and Rick Perkins
Florida Virtual School

Peggy Baker and Margaret Small
Equity and Achievement for Standards-Based Learning Institute

Richard DeLorenzo
Re-Inventing Schools Coalition

Bill Diehl
Diploma Plus

Laura Harris
National Governors Association

Paul Leather and Mariane Gfroerer
New Hampshire Department of Education

Melinda Maddox
Alabama State Department of Education

Jill Kirk Powers
Oregon Business Council

Jim Schnitz
Western Governors University

Copper Stoll and Roberta Selleck
Adams County 50 School District, Westminster, Colorado

Endnotes

[1] For more discussion on student motivation, see C. Christensen et al., "Rethinking Student Motivation: Why Understanding the Job is Crucial for Improving Education," Innosight Institute, September 2010.

[2] The National Governors Association has initiated an effort on competency-based opportunities, framing it under Increased Credit Flexibility. This effort emerges out of the A New Day for Learning initiative from the Mott Foundation with the interest of formally recognizing out-of-school learning.

[3] Adapted from materials from the Equity and Achievement for Standards-Based Learning Institute and the Re-Inventing Schools Coalition.

[4] For more discussion on student-centered assessment, see Rick Stiggins's "Assessment Manifesto: A Call for the Development of Balanced Assessment Systems."

[5] "Proficiency-Based Instruction and Assessment: A Promising Path to Higher Achievement in Oregon Education" by Oregon Education Roundtable, March 2009, page 5.

[6] Wikipedia provides a good introduction to learning management systems and student information systems.

[7] The first formal study of competency-based learning is starting in 2010. The EASL Institute, supported by National Science Foundation funding, will partner with the 21st Century Partnership for STEM Education (21PSTEM) in a four-year research project studying attitudes and student success in learning mathematics when supported by outcomes-based assessment. The project, called Proficiency-Based Assessment and Reassessment of Learning Outcomes (PARLO), will incorporate EASL software as a crucial component of the project. 21PSTEM is based in the greater Philadelphia area and will engage ninth grade Algebra teachers from more than forty schools around the area.

[8] Available at American Youth Policy Forum, www.aypf.org/.../ ANewModelofStudentAssessmentforthe21stCentury.pdf.

[9] *Schools and Staffing Survey: 1999-2000*, U.S. Department of Education. www.ed.gov

[10] *Keeping Pace with K-12 Online Learning 2010*, Evergreen Consulting; www.KPK12.com

[11] *K–12 Online Learning: A 2008 Follow-up of the Survey of U.S. School District Administrators*, Sloan Consortium, January 2009, http:// www.sloan-c.org/publications/survey/pdf/k-12_online_ learning_2008.pdf

[12] The authors use the language "over-aged and under-credited" or "students off-track to graduation" rather than the phrase "dropout." The term "dropout" does not capture the dynamics between schools, communities, and students that lead to students disengaging from school. For more information on Multiple Pathways to Graduation see Jobs for the Future's "Bringing Off-

Track Youth Into the Center of High School Reform: Lessons and Tools from Leading Communities" (July 2009) at www.jff.org and "Youth Transition Funders Group's Closing the Graduation Gap: A Superintendent's Guide for Planning Multiple Pathways to Graduation" at www.ytfg.org

[13] See article in *USA Today*, July 5, 2010. http://www.usatoday.com/news/education/2010-07-05-grade-held-back_N.htm

[14] Although it is beyond the scope of this paper, the authors want to bring readers' attention to the fact that even though credit recovery is rapidly expanding, there are not quality standards defining it. The authors have reason to believe that in some cases credit recovery programming does not follow the guidelines of effective online or blended learning.

[15] R. DeLorenzo et al., *Delivering on the Promise* (Bloomington, IN: Solution Tree Press, 2009), 71–72, Source: Highland Tech High Standards and Rubrics, www.highlandtech.org/academics/standards_and_rubrics/index.php.

[16] Ibid, page 28.

[17] Forthcoming "Attributes of Proficiency-Based Education and Conditions Required to Support It and Take It To System-Wide Scale," Oregon Proficiency Project, 2010.

[18] The Oregon Proficiency Project offers materials, including videos available at the Center for Educational Leadership at www.k-12leadership.org/professional-development/proficiency-project.

[19] The system infrastructure includes financing models, performance metrics, student information systems, teacher training and professional development, curriculum and digital tools, assessments, grading practices, transcripts, scheduling, etc.

[20] Andrew Hargadon is the founder of the Center for Entrepreneurship and a Professor of Technology Management at the Graduate School of Management at University of California, Davis. His research focus is on innovation and entrepreneurship. http://andrewhargadon.typepad.com/my_weblog/on_managing_innovation/.

[21] "USDOE Evaluation of Evidence-Based Practices in Online Learning," http://www.ed.gov/technology/netp-2010/reorganizing-teaching-learning.

[22] Interview, March 2010.

[23] *Delivering on the Promise*, p27.

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Executive Summary

It's Not a Matter of Time:

Highlights from the 2011 Competency-Based Learning Summit

Written by:

Chris Sturgis, MetisNet

Susan Patrick, International Association for K-12 Online Learning

Linda Pittenger, Council of Chief State School Officers

July 2011

iNACOL International Association for K-12 Online Learning

CCSSO Council of Chief State School Officers

CCSSO and iNACOL would like to thank the Bill & Melinda Gates Foundation, the Carnegie Corporation, The Donnell-Kay Foundation, the Nellie Mae Education Foundation and the Stupski Foundation for the generous funding and support for the Competency-Based Learning Summit.

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Executive Summary

Introducing competency-based learning is an essential step to unlocking innovation in the education system. In March 2011, the Council of Chief State School Officers (CCSSO) and the International Association for K–12 Online Learning (iNACOL) sponsored the Competency-Based Learning Summit to bring together the innovative leaders in order to expedite capacity-building to meet the growing demand for competency-based approaches.

For more information, go to www.inacol.org. The iNACOL website (www.inacol.org) offers a wiki with resources and examples about the issues raised in this paper, as well as three related papers:

- *"When Success Is the Only Option: Designing Competency-Based Pathways for Next Generation Learning"*
- *"Clearing the Path: Creating Innovation Space for Serving Over-Age, Under-Credited Students in Competency-Based Pathways"*
- *"Cracking the Code: Synchronizing Policy and Practice for Performance-Based Learning"*

A Note on Language

Several terms are used to describe competency-based learning, including performance-based, proficiency-based, and standards-based. Competency-based will be used in this paper because federal policy has incorporated the term in Race to the Top and other programs. However, in describing reform efforts, the terms used by the state or district will be used. The hope is that as long as a shared working definition is used to drive policy, the variations in the descriptive term will not be a barrier.

What Is Competency-Based Learning?

Competency-based and next generation learning offer a new value proposition:

> *By aligning all of our resources (in schools, the community, and online) around student learning to enable students to progress upon mastery, our country can increase productivity in the education system, while simultaneously raising achievement levels overall and reducing the achievement gap.*

At the Competency-Based Learning Summit, participants fine-tuned a working definition of performance-based learning.

- Students advance upon mastery.
- Competencies include explicit, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students.
- Students receive timely, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.[1]

Competency-based efforts are not a silver bullet; only high-quality implementation will produce meaningful results. All five components of the definition need to be successfully implemented to ensure equity and excellence.

Getting Started

The following are highlights of lessons learned from innovators in competency-based school designs and reforms.

Identifying Innovation Space: Building upon disruptive innovation theories, innovators and policymakers are seeking out areas of non-consumption. Participants seek to take advantage of five areas for innovation: alternative education, students at home or in a hospital, credit recovery, insufficient teacher supply or distribution problems, and students with high mobility.

Transforming the Current System from Within: At the Summit, district leaders exchanged their approaches to introducing competency-based learning. Lindsay Unified School District in California began with creating a shared vision and introduced competency-based approaches where principal leadership was hungry to innovate. New York City established an innovation zone, building on local practices in addition to bringing in outside partners.

State policy leaders shared their approaches to creating innovative space for competency-based learning. New Hampshire is leading the way by eliminating seat-time while embedding competency-based learning within the course structure. They have simultaneously increased expanded learning opportunities so that students have more options for building and applying skills. Oregon created enabling legislation and then invested in pilots in two districts. Maine is partnering with the Reinventing Schools Coalition to pilot competency-based learning in two districts.

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[1] Competency-based innovators design two sets of competencies: academic and skills that students need for college and career preparation. Using different terms, innovators all include forms of applied learning competencies such as creativity, problem solving, and communication. Many include personal skills such as perseverance, cultural competency, and study skills. Those serving vulnerable students include social-emotional literacy and navigational skills that are particularly important for students from low-income communities.

Tough Issues

Throughout the Summit, a number of "tough issues" were raised, issues that did not have a simple solution or even enough understanding of the landscape to seek a resolution. A few themes were consistent throughout the conversation.

- The system must be aligned with 100 percent of the students, even those who may fall behind, fall off the track to graduation, or "stop out."
- Students must be treated as customers, at the core of all decisions, to ensure an effective and equitable competency-based system.
- Districts and schools will need to design around the educational (both academic and lifelong learning) needs of their students.

Accountability: Putting the Customer First

Participants explored the idea that approaching students as customers created a different model for accountability than the current top-down policy. Accountability from the ground up requires growth data for individual students based on levels of competencies. Accountability systems become continuous improvement systems, rolling up student-level proficiency data to school, district, and state accountability dashboards.

Equity: Eliminating Our Tolerance for Inequality

As competency-based innovations and enabling policy conditions expand, equity must become an essential lens. To do otherwise runs the risk of reproducing the inequities of the time-based system. Several essential steps include 1) placing students on the fastest path to goals that matter; 2) ensuring consistency in academic standards for all students, using rubrics as well as online learning with assessment engines to validate proficiency levels; and 3) investing in leadership development, thus increasing diversity and expertise by building bridges with communities of color and networks serving special populations such as English language learners and special education students.

Carnegie Unit: Creating Meaning for Students and Educators

When the idea of redefining the Carnegie unit is introduced in policy discussions, the issues soon begin to focus on other elements of the education system. This includes the roles and responsibilities of teaching, new types of jobs and career development, job protection, and budgeting. It is important to ensure that the new models have meaning for students and educators. New Hampshire has demonstrated that maintaining the course structure is a viable method for moving forward without having to tackle all the issues simultaneously.

Personalization: Co-Designing with Students

Participants suggested that keeping student voice central to the design and implementation of competency-based approaches is imperative. Competency-based learning is inherently personalized as students progress upon their learning trajectory in a way that is unique to them. In addition, competency-based approaches quickly hit a wall without student co-design. Deeper learning—the development and application of knowledge—requires real-world experiences or project-based learning in which students shape their learning.

Management Information Systems: Re-Engineering for Results

The competency-based innovators all started out with paper-based systems and soon developed information systems to support the abundant data generated on student learning. Standards-based systems capture proficiency levels that are validated with on-demand assessment data. Standards are tied to learning resources with the potential for customized recommendation engines for student interventions. As states and districts begin to think about scaling competency-based systems, they quickly encounter the complexity of trying to build student-centered, competency-based information management systems to be integrated with their current school-centered, top-down accountability systems.

Assessments: Where the Rubber Meets the Road

It was proposed that summative assessments should only occur after a student has mastered materials, serving as a validation mechanism for ensuring that standards were consistent across teachers, schools, and districts. Similarly, it was proposed that summative assessments should be delivered "just-in-time"—as soon as students are ready. Greater modularization would be helpful so that students could demonstrate the material they had mastered in shorter periods of time, allowing a sense of progress and portability for those with high mobility. Most of all, participants at the Summit raised concerns about whether the assessment consortia were taking into consideration the possibility of competency-based, next generation learning systems.

Shared Vision: Investing in the Process

Those state and district leaders that had substantial experience in creating competency-based systems constantly reminded us that it is imperative to engage the communities early and often. The true cost of community engagement is rarely budgeted, placing it at risk of being less than adequate. In addition, participants voiced a concern about how to communicate competency-based learning and the other elements of next generation learning to the broader community without causing confusion.

Higher Education: The Missing Partner

Representatives from New Hampshire suggested that they had made a mistake in their early stages of building a competency-based policy by not engaging higher education early in the process. Four areas that should be considered in higher-education policy included increasing access to higher-education courses for students who have advanced beyond K–12 competencies, upgrading admissions policies and practices to accept competency-based transcripts, teacher training, and competency-based post-secondary courses.

Unlocking the System

Ideas on how to advance competency-based approaches and unlock the system for greater innovation were offered at the Summit.

Alignment with the New Value Proposition

All the panelists agreed that aligning incentives with the new value proposition was critical for driving

the transformation of the education system. A new business model focused on performance outcomes was proposed to drive transformation. The school turnaround, online learning, and supplemental education service space are potential areas for performance-based or outcome-based payment.

The Power of the Customer

A customer-driven market or democratization of the market challenges top-down approaches. Instead of trying to determine what students need and organizing options to meet them, students decide for themselves in a customer-driven system.

Emerging Opportunities

The Common Core of State Standards is a mechanism for organizing and driving more innovation. Students underserved by the current system, such as young people in juvenile justice or alternative schools, offer a place to show the value of competency-based approaches. School turnaround policy is opening up a potential market given the federal funds directed toward the bottom five percent of schools. Finally, new learning models are developing in which students can access blended learning in community centers as well as schools.

The Federal Role in Unlocking the System

Although federal policy has yet to be created to promote competency-based approaches, the U.S. Department of Education has taken small steps toward integrating competency-based approaches into competitive programs, including Race to the Top and I3 competitions. Participants were repeatedly encouraged to inform Jim Shelton, Assistant Deputy Secretary for Innovation and Improvement, if they encountered specific barriers in federal policy or practices.

Conclusion

As more states build experience in competency-based policy and approaches, there is sure to be greater insight, more experience to inform the tough issues, and a stronger sense of the strategies that will move us forward. In the coming year, there are several things that need to be done consistently to accelerate the transformation of our educational system.

- Include innovative space for competency-based and next generation learning in every policy and initiative.
- Develop diverse leadership that can walk in both worlds, improving the traditional system while advancing next generation approaches.
- Ensure that traditionally underserved students are benefiting from the new models so that we do not replicate the inequity of the current system.
- Most importantly, make sure that student learning is driving all of our decisions, each and every one of them.

Keeping our eye on the prize is the key to unlocking our education system for new and wonderful possibilities in our communities and our country.

It's Not a Matter of Time:

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This is one of two reports from the Competency-Based Learning Summit. See *Cracking the Code: Synchronizing Policy and Practice for Performance-Based Learning* for a deeper discussion on state policy issues.

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Acknowledgments

There are times when philanthropic leadership is invaluable in helping our country take innovative leaps. With the greatest appreciation, we want to thank the following foundations for their leadership. It takes imagination, vision for the future of learning, risk-taking for catalyzing new policy waters, and a collaborative commitment to clearing the pathway together by making investments in competency-based learning. This pioneering spirit, drive for creative problem-solving and development of new designs are the very qualities that we want our children to have to be able to adapt to the global challenges before us.

We want to give a special thank you to the Nellie Mae Education Foundation. They are an example to all of us how a regional foundation can shape the national educational agenda. None of this work on competency-based learning would be possible without their vision and early investments.

Bill & Melinda Gates foundation

Carnegie Corporation of New York

DK Donnell-Kay Foundation

Nellie Mae Education Foundation
Opening Doors to Tomorrow
www.nmefdn.org

Stupski Foundation

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Introduction

> *Competency-based learning is going to be a central component of the new systems. It is already anchored in. The first step was states coming together to adopt a Common Core of learning in English language arts and math… We are on a pathway for competency-based learning in the United States.*
>
> – Gene Wilhoit, Council of Chief State School Officers

From Anchorage, Alaska, to Orlando, Florida, and from Gray, Maine, to Yuma, Arizona, one hundred competency-based innovators gathered at the Competency-Based Learning Summit in March 2011. Sponsored by the Council of Chief State School Officers (CCSSO) and the International Association for K–12 Online Learning (iNACOL), the Summit was developed in response to the findings in the report "When Success Is the Only Option: Designing Competency-Based Pathways for Next Generation Learning." The 2010 scan of the field of competency-based innovation found that the pockets of innovation across the country were too often operating in general isolation. By bringing together the leaders in the field, CCSSO and iNACOL set out to expedite building the capacity to meet the growing demand for competency-based approaches.

The Summit, the first step toward building the infrastructure to expedite competency-based approaches, was designed around three goals:

- Sharing expertise across and among innovators and policy leaders
- Building a common working definition of competency-based learning
- Enhancing the strategies and skills for advancing the establishment of competency-based options

Although it would be impossible to capture the Summit's cascade of ideas, this paper highlights the key issues raised to support the advancement of competency-based learning. A complementary paper, "Cracking the Code: Synchronizing Policy and Practice for Performance-Based Learning," provides a more in-depth look at the state policy issues discussed at the Summit.

In a proficiency system, failure or poor performance may be part of the student's learning curve, but it is not an outcome.

– Proficiency-Based Instruction and Assessment, Oregon Education Roundtable

A Note on Language

Several terms are used to describe competency-based learning, including performance-based, proficiency-based, and standards-based. Competency-based will be used in this paper because federal policy has incorporated the term in Race to the Top and other programs. However, in describing reform efforts, the terms used by the state or district will be used. The hope is that as long as a shared working definition is used to drive policy, the variations in the descriptive term will not be a barrier.

What Is Competency-Based Learning?

> *Students have been locked down by the concept of seat-time and locked out of the technological revolution that has transformed nearly every sector of American society, except for education.*
>
> – Jim Shelton, Assistant Deputy Secretary of Education

Competency-based learning is not simply the elimination of seat-time. In fact, eliminating it without replacing it with something else may increase inequities. The time-based system must be replaced with a learning-based or competency-based system that is fully aligned with students and what they need to educationally progress.

In "When Success Is the Only Option: Designing Competency-Based Pathways for Next Generation Learning," a working definition was proposed to guide the development of policies and practice. This is particularly important as the language varies among states, districts, and schools and includes "proficiency-" and "performance-based learning." Summit participants strengthened the working definition to describe a high-quality competency-based system. The following is the revised working definition of competency-based learning approaches:

- Students advance upon mastery.
- Competencies include explicit, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students.
- Students receive timely, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.[1]

Competency-based efforts are certainly not a silver bullet; only high-quality implementation will produce meaningful results. All five components of the definition need to be successfully implemented to ensure equity and excellence.

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[1] Competency-based innovators design two sets of competencies: academic and skills that students need for college and career preparation. Using different terms, innovators all include forms of applied learning competencies such as creativity, problem solving, and communication. Many include personal skills such as perseverance, cultural competency, and study skills. Those serving vulnerable students include social-emotional literacy and navigational skills that are particularly important for students from low-income communities.

The conversations at the Summit were not based on competency-based issues alone. Other concepts swept through the discussions, including student-centered, student co-design, anytime, everywhere learning opportunities, and the rapidly evolving digital learning tools. As innovations and policies emerge, it is important to remember that competency-based education is highly related but not exactly the same as other elements of next generation learning. Each of the concepts can be implemented independently of each other. For example, competency-based practices can be used in classrooms without access to computer-based instruction or online learning. Teachers can design curriculum that is based on state standards without attention to student agency. However, learning is so much more powerful when it is personalized, individualized, and draws on expanded learning opportunities with 24/7 online learning and real-world experiences.

A competency-based system is one in which students advance upon mastery of essential skills and knowledge without regard to time or place.

– from small group discussions at the Summit

Next Generation Learning

Competency-based learning is often included in discussions about next generation learning models. This is much more than expanded use of digital tools. Working in partnership with seven states, the Council of Chief State School Officers has defined Next Generation Learning as rooted in six critical attributes, or essential conditions:

- ***Personalizing learning***, which calls for a data-driven framework to set goals, assess progress, and ensure students receive the academic and developmental supports they need;
- ***Comprehensive systems of learning supports***, which addresses social, emotional, physical, and cognitive development along a continuum of services to ensure the success of all students;
- ***World-class knowledge and skills,*** which require achievement goals to sufficiently encompass the content knowledge and skills required for success in a globally-oriented world;
- ***Performance-based learning***, which puts students at the center of the learning process by enabling the demonstration of mastery based on high, clear, and commonly-shared expectations;
- ***Anytime, everywhere opportunities***, which provide constructive learning experiences in all aspects of a child's life, through both the geographic and the Internet-connected community; and
- ***Authentic student voice***, which is the deep engagement of students in directing and owning their individual learning and shaping the nature of the education experience among their peers.

Time and Timing: Deconstructing the Time-Based System

Time. It was part of every conversation throughout the Summit. As innovators explored more deeply what a learning-based system could look like, it became clearer exactly how assumptions about time and timing shape our education system. Here are some examples of how a competency-based system might think about time and timing differently.

> *It's a problem when policy communicates that learning starts in September and ends in June. We have to be thinking about year-round learning for kids. That doesn't mean that a kid is in school all year round. It means that we support students learning all year round.*
>
> – Fred Bramante, New Hampshire Board of Education

- **Timing Designed Around Student Needs:** Those who need more time get it. Students who want more time to accelerate learning get it. This means that learning does not stop at the end of the school day, school week, or semester. Students can complete courses at any time during the school year.
- **Students Are Provided Supports They Need, When They Need It:** The focus shifts to unit recovery, rapidly supporting students when they are not grasping a specific learning objective, rather than credit recovery after a student has failed an entire semester. Schools no longer need to bear the cost of students repeating entire courses.
- **Students Always Have the Opportunity for Mastery:** In the current system, grade point averages reflect an accumulation of achievement at different points in time. In a competency-based system, students always have the chance to build mastery. New metrics capturing the rate of learning reflect student perseverance, school effectiveness, and opportunities to learn outside of school.
- **Students Attain Mastery Before Summative Assessment:** Students are assessed after they have mastered skills, not before. All summative tests, whether course-based or state accountability exams, are delivered when students are proficient, serving as a mechanism to ensure consistency of standards.
- **Student Learning Drives Decisions:** Learning, rather than time, becomes the basis of determining job structures, scheduling, resource allocation, and budgets.

And last, but not least…

- **Pacing Matters:** Pacing guides are a mechanism to ensure that students are getting the support they need, not simply moving through a curriculum over a period of time. Competency-based means that students who are struggling do not fall further behind. Principals and educators keep an eye on students' pace in learning, using it as an opportunity to support effective instruction, engage parents, and allocate resources.

What does this all mean? Bror Saxberg, Chief Learning Officer of Kaplan, Inc., shared his vision for how the combination of these changes can become the education system of the future.

> *What does competency-based flexibility really look like? Kids with different start and ending dates for courses; kids who are slower in some courses, faster in others; kids in online, hybrid, and classroom environments for different parts of the day; kids doing internships tied to learning outcomes (augmented with online homework to drive home conceptual and skill pieces tied to their daily internship experiences), etc.*
>
> *What, then, is the interest of parents, employers, administrators, and ultimately the state in understanding how mastery is developing in this newly fluid environment? It's like a freeway for cars, or a roundabout, where the cars may be moving at different speeds, and entering and leaving at speed, rather than lots of stoplights gating the flow of traffic. You now need monitoring stations and data about flow and speed, with flags popping up when cars are stalled or moving too slowly (on an autobahn, safely moving fast is okay, too!). Your accountability "war room" is providing daily updates, with accumulating data about teachers, learning environments, internships, specific courses, comparing average rates of progress for cohorts of similar kids in one environment with rates of progress for the same kinds of kids in another; as the data accumulate to show a learning experience is going badly compared to how it should go, either for a cohort or an individual, flares should go up to visit/coach/intervene/replace/support. A hard objective is being hit every week by large numbers of students, not just once a year—you can generate evidence about what works for mastering it (and what doesn't) as fast as you can think, not just once per year.*
>
> *All of this depends, then, critically on high-quality (ideally, embedded within activities) data flow on learning within the learning environments. This means formative assessment, not just summative assessment, has to be developed professionally, separately, and carefully validated—waiting for end-of-year results is way too long, and damaging to individuals and groups. It would be like counting dents on cars at the off-ramps of freeways, instead of monitoring the conditions actually on the road in real time.*
>
> *This means every state commissioner should wind up with an interactive map in his or her office, just like the folks running transit systems, color-coded to show all the experiences' and environments' learning status for students, every week—possibly every day, in some cases. Which innovations about mastering fraction equivalence are doing the best in your state THIS WEEK?*

Most importantly, a competency-based system embraces student learning above all other social values. It operates on a new value proposition: By aligning all of our resources (in schools, the community, and online) around student learning to enable students to progress upon mastery, our country can increase productivity in the education system, while simultaneously raising achievement levels overall and reducing the achievement gap. This is an enormous cultural change after hundreds of years of our current assumptions of time, timing and tracking, A-F grades, age-based grouping, and 180-day school years.

Getting Started

Conversations flourished throughout the Summit on lessons learned about competency-based school designs and reforms. The following section describes key points in the discussion.

Identifying Innovation Space: Autonomy and Non-Consumption

Many of the competency-based school developers took advantage of the policy reforms promoting autonomy to build their models, often relying on creativity to navigate the current policy environment. School leaders shared a number of techniques they have used to operate competency-based approaches within a time-based system.

- New Hampshire eliminated seat-time and embedded competency-based learning within redefined course structures.
- Diploma Plus and Big Picture Learning schools created crosswalks between their competencies and state standards.
- Some Asia Society schools use a two-diploma structure: the first represents the district's requirements, and the second represents the global education competencies.

Competency-based education is not by definition a disruptive innovation because it is not a specific product or service. However, it certainly is disruptive when creating opportunities to challenge long-held practices that are constraining education reform. Building upon the theories of Clayton Christensen,[2] innovators and policymakers should seek out areas of non-consumption in public education as this is where competency-based approaches can thrive. Participants mentioned a number of areas of non-consumption or under-consumption where competency-based practices are or could make inroads.

- **Alternative Education:** Schools serving over-age, under-credited students are also a place where competency-based learning is taking root. Diploma Plus and Youth Connections Virtual School are expediting student learning for those most at risk of aging-out of the K–12 system.

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[2] Clayton Christensen et al., *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (New York: McGraw-Hill, 2008).

- **Home and Hospital:** Students with illnesses at home or in a hospital have benefited from competency-based pathways.
- **Credit Recovery:** There has been a rapid expansion of credit recovery courses using technology. Students simply demonstrate that they have mastered the material without regard to how much time it took them.
- **Insufficient Supply or Distribution Problems:** Online courses can help address teacher shortage issues such as serving students where a course is otherwise unavailable or where there are insufficient teachers in any given content area.
- **Students with High Mobility:** Competency-based approaches can enhance educational continuity. Children in military families and those that are homeless or in foster care endure high rates of school transfer. Students with responsibilities to their families or communities require flexibility. Students placed into disciplinary education or juvenile detention require portable competency-based approaches so that they do not fall further and further behind.

Michael Horn noted, "The budget crisis is increasing areas of non-consumption where you have to reach for other solutions. The nature and depth of the crises will create a spark for innovative solutions that look at reformulating how to deliver education at a much higher productivity level. So what the states have to do is create the space as solutions are introduced."

Transforming the Current System from Within

Although the theories of disruptive innovation suggest that it cannot be expected for a monopolistic public system to be able to transform itself (described graphically as self-cannibalization by Michael Horn), the policy leaders at the Summit believe it intolerable to suggest otherwise. Simply put, the health of our families, communities, economy, and national security depend on finding a way to bring about comprehensive transformation.

The rapid transformation of the Chugach School District in Alaska has taken hold of the imagination of many educational leaders. By implementing a competency-based approach, this tremendously impoverished rural district produced sky-rocketing achievement gains. Within five years, Chugach School district saw the following results:[3]

- Over a five-year period, average student achievement on the California Achievement Test rose from the bottom quartile to the 72nd percentile.
- The percentage of students participating in college entrance exams rose from 0 percent to more than 70 percent by 2000.
- Between 1995 and 2000, teacher turnover was reduced to 12 percent; in the previous twenty-year history of the district, turnover was 55 percent yearly.

Furthermore, after three years of implementation, teachers valued the approach so highly that they requested that student achievement be included in their performance evaluations.

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[3] Richard A. DeLorenzo et al., *Delivering on the Promise: The Education Revolution* (Bloomington, IN: Solution Tree Press, 2009).

Below are updates from many of the innovative districts and states valiantly advancing competency-based learning. For more information on the efforts of states, please read "Cracking the Code: Synchronizing Policy and Practice for Performance-Based Learning."

Lindsay Unified School District: Building a Strategic Design for Performance-Based Learning

Lindsay Unified is located in the central San Joaquin Valley in the state of California and serves just over 4,000 students from Kindergarten to grade 12. The district has a large Hispanic/Latino (89.8%), socio-economically disadvantaged (75.0 %), English Language Learner (52.4%), and migrant (28.6%) population. Lindsay is in an agricultural area where many residents are employed in farm labor. Most residents speak Spanish at home, and the average adult education level is fifth grade. After many years of low achievement, the district recognized that it could not dramatically improve achievement within the constraints of the traditional system. Thus, the LUSD partnered with Schwahn Leadership Associates, Marzano Research Laboratory, and the Reinventing Schools Coalition to shape a performance-based educational system that would transform the way schooling is done in LUSD.

Tom Rooney, Assistant Superintendent of Curriculum and Instruction, described LUSD's journey to a performance-based system. The first step was to create a District Strategic Design that was owned by all stakeholders and would serve as the foundation for transforming the district into a high-performing, performance-based system. During a district-wide community meeting in May 2007, it was discovered that all stakeholders essentially wanted the same thing for their children. With community support, LUSD developed a set of guiding principles that included the belief that students learn in different ways and in different time frames. Immediately the question was raised: Why doesn't our education system honor this basic principle about how and when our children learn?

Working with the teachers, administration, students, and parents from different income levels, a set of lifelong learning standards were developed that describe the Lindsay graduate as a person who in difficult situations sets personal goals,

Guiding Principles about Students and Learning

All students can learn.

Students learn in different ways and time frames.

Successful learning breeds continued success which influences esteem, attitude, and motivation.

Mistakes are inherent in the learning process.

Learning and curiosity are basic human drives.

Student learning requires positive and validating relationships with teachers.

Student learning is enhanced by meaningful, real-life experiences requiring complex thinking.

Learning is fun.

Student learning is fostered by frequent, formative feedback.

Student learning is future-focused.

– Lindsay Unified School District

monitors their own progress, is a globally responsible citizen, and embraces the power of cultural diversity. The district developed academic units of study in all content areas in K–12 that clearly defined the knowledge and skills required of Lindsay learners. These units of study, referred to as Measurement Topics, were developed in consultation with Marzano Research Laboratory and were fully implemented in the fall of 2009. The LUSD Measurement Topics are based on the California state standards and are supported by a comprehensive assessment system using multiple measures so that the LUSD learning community can "guarantee" what learners will know and be able to do before graduating from Lindsay High School.

The decision to roll out a performance-based system first at Lindsay High School in the fall of 2009 was based on the fact that the principal of that school fully embraced the vision of performance-based education and was ready to take on the leadership responsibilities. The performance-based system was introduced to the incoming ninth grade class of that school year and learners in that class were required to demonstrate specific competencies in each unit of study prior to advancing to the next unit. Initially, students liked the idea of "learning at their own pace," but many students realized in April 2010 that the school was serious about having them demonstrate competencies, and there was a "mass scramble" to demonstrate mastery near the end of that year. After the first year, over one quarter of the ninth graders failed to complete the required competencies; they were required to begin their sophomore year where they left off when their freshman year ended. By this time, the learners began to understand the performance-based system and the rigorous learning that was now expected of them. LUSD has rolled out the standards-based approach using the accordion method, introducing it in seventh grade and rolling it up to the tenth grade in the fall of 2010, with plans for having a K–11 performance-based system in place by the fall of 2011.

Rooney cautioned participants that they had to be ready to "blow out the norms of the master schedule at the secondary level." In order to be responsive to learner needs, a school would have to "reshuffle students throughout the year. Some will work independently, some electronically, some with a teacher. Sometimes it requires organizing students homogenously by level." Online learning can provide the flexibility to students that need remediation or want to move ahead.

Although it has only been one year, Lindsay High School had the highest growth among all the schools in the district with an impressive 45-point Academic Performance Index (API) gain. The highest performing students were the ninth graders, the same learners who engaged in performance-based education. Preliminary and non-public results from the Spring 2011 census assessment for all tenth graders shows that Lindsay High School will have a second year of high academic gains, far exceeding the 45-point gain in 2010. As LUSD continues to roll out the approach, more data will be generated, providing a better understanding of the dynamics of a true performance-based system.

New York City: Creating Innovation Space

The New York City Department of Education (NYCDOE) has launched an ambitious effort to move its schools toward more student-centered, personalized learning models through its Innovation Zone (iZone). The iZone will include 160 schools this year that have committed to organizing their curriculum, instruction, staffing, scheduling, and resources around the needs, motivations, and strengths of individual students.

Arthur VanderVeen, CEO of the NYCDOE Office of Innovation, explained that the initiative is building on the creative energies of innovative schools that have been personalizing learning for years but have lacked the organized support, policy flexibility, and access to new technologies that are critical to rethinking traditional school structures in order to build schools that are student-centered, personalized, and engaging students in meaningful, rigorous learning.

iZone Design Principles

Globally Competitive Standards

Personalized Learning Plans

New Staff and Student Roles

Competency-Based Learning and Assessment

Multiple Learning Modalities

– New York City iZone

iZone schools are drawing on the support of partners with experience in personalizing learning. Three partners—New Tech Network, Reinventing Schools Coalition, and Kunskapsskolan—are facilitating the schools' work to envision a future state design aligned to the five design principles, develop a three-year roadmap, analyze capacity needs, and develop implementation and professional development plans. School designs include online and blended learning, an emphasis on developing higher-order thinking skills through performance-based assessment, project-based learning, the use of e-portfolios, competency-based grading, strong advisory models focused on personalized learning plans, and flexible, student-centered scheduling.

NYCDOE has been working with the New York State Education Department to develop new policy proposals concerning seat-time and competency-based credit. It has also been working the United Federation of Teachers to increase scheduling flexibility and explore new teacher licenses related to online and blended teaching roles.

New Hampshire: Boldly Going Where No One Has Gone Before

New Hampshire is leading the way by replacing seat-time with competency-based policies. It has kept the course structure, requiring students to master competencies to get credits. They have simultaneously increased expanded-learning opportunities so that students have more options for how they can build and apply skills. New Hampshire learned that enabling policy is insufficient: the initial policy provided districts with alternative options but virtually no districts took advantage of the flexibility. New Hampshire did not see substantial innovation until they required all schools to offer competency-based credits and provided regional supports to districts and schools.

New Hampshire's Virtual Learning Academy Charter School (VLACS) is a statewide, competency-based virtual school designed to provide all students with a personalized education. Currently, the school has over 10,000 enrollments that span grades 6 through 12, including Advanced Placement, dual-credit high school, and college courses. VLACS provides students with the ultimate in flexibility as students may enroll in courses at any time and complete coursework at a pace that matches their needs. The school moved to a competency-based approach earlier this year and now offers competency recovery, competency-based courses, and experiential learning opportunities (ELOs). ELOs are blended online courses where students meet many course competencies through internships or other workplace experiences and complete the remaining course competencies online. Student progress is measured by the completion of competencies and not through traditional attendance-based measures. The method for determining state aid also supports the competency-based model as the school earns funding based on the percentage of course completion of each student.

Oregon: Piloting Their Way to Proficiency

Oregon introduced enabling policies for proficiency-based credit in 2003. The strategy allowed both a proficiency-based system and a time-based system to operate in tandem without disrupting the financial model that is aligned with units of instruction based on seat-time. Similar to the experience in New Hampshire, districts and schools rarely took advantage to innovate. Options to the seat-time funding model developed during implementation of a 2005 statute enabling students sixteen years of age or older to attend public post-secondary institutions while still enrolled in their local school district. As a result, more out-of-class proficiency options have surfaced.

A seven-district pilot provided additional input from the field on implementation, resulting in a State Board of Education Task Force as a part of Oregon diploma revisions in 2008. In 2009, the Board approved policy revisions, and additional school districts have initiated various stages of implementation. In 2009, the Oregon Proficiency Project began with two pilot sites exploring proficiency-based approaches. Statewide, nearly 2,000 teachers and administrators have participated in professional development for proficiency-based instruction through a partnership with the Business Education Compact. With increased knowledge, the state is now exploring several policy issues that will increase the likelihood of proficiency-based approaches being adopted, including changes to grading and reporting rules, influencing teacher and administrator training to include proficiency-based instruction, and streamlining K–12 and higher-education funding so that students can accelerate their learning while still in high school.

Alabama: Combining Initiatives into a Transformational Strategy

Deputy State Superintendent Tommy Bice described Alabama's process of drawing together online learning, credit recovery, and accelerated learning into a cohesive approach to transform the education system.

In 2005, Alabama's online learning initiative, ACCESS, was launched. By 2009, it was contributing to Alabama's significant gains in Advanced Placement (24% gains compared to 7% nationally). That same year, the system became statewide with all students having access to online learning.

In 2008, the Board of Education passed FIRST CHOICE, the Advanced Academic Endorsement to the Alabama High School Diploma. FIRST CHOICE is the default diploma for all entering ninth graders, beginning with the ninth grade class of 2008–2009, which includes a minimum requirement of Algebra II with Trigonometry, two years of a foreign language, and an online experience. To support FIRST CHOICE, academic tools are being implemented to help guide students through their high school careers with the most efficient use of time and ability, including:

- Credit recovery
- Credit advancement
- Graduation coaches
- Support systems for struggling students (PASS)

Credit recovery and credit advancement are both policies enabling competency-based credits. Starting in the 2009–2010 school year, students can take advantage of competency-based credits. Similar to other states, districts are hesitant to move forward on competency-based credits without further guidance from the state.

Tough Issues

> *We have to stop thinking in terms of courses and time because it really is about individual students and what it takes them to get through. What's unacceptable at my schools is if students are not provided with supports.*
>
> – Ginger Blackmon, Highland Tech High

Throughout the Summit, a number of tough issues were raised—issues that did not have a simple solution or even enough understanding of the landscape to seek a resolution. Many of these emerging issues are substantive. However, several were process issues, including synchronizing policy and practice, communication, and engaging critical partners.

Throughout the conversations, there was a constant reiteration that in order to ensure an effective and equitable competency-based system, students need to be put first and approached as customers. This requires aligning the system with 100% of the students, even those who may fall behind, fall off the track to graduation, or "stop out." It requires the districts and schools to design around the educational needs (both academic and lifelong learning) of their students.

Accountability: Putting the Customer First

With the introduction of accountability as a critical element of education reform, our country has come to understand it as a top-down dynamic. The federal government holds the state accountable, the state holds districts, the districts hold schools, schools hold teachers, and teachers hold students.

Yet, there is another way to think about it: we can think of students as customers. Accountability becomes quality management, and accountability systems become continuous improvement systems. Many of the conversations at the Summit veered into what can become possible once technologies are in place to increase the viability of this type of accountability model.

- The tools for learning become more important than ever. Validity of the assessment instruments is critical; if we don't trust the validity, then the entire system is questioned. Teachers and students will need access to a rich set of learning tasks and assessment rubrics

so that students can demonstrate that they have mastered a learning topic. Rubrics and consistent scales are a critical step in the development of high-quality, performance-based assessments. In addition, the mastery we are measuring must be transferable into other learning environments.[4]

- Mastery becomes the trigger for summative assessment, rather than the tests taking place at an arbitrary point on a calendar.
- Pace matters. In fact, pace becomes the mechanism to ensure that students are getting the supports they need. If students are not moving forward within a pace range, it is an indication that they are not getting served, served well enough, or that there are deeper issues that must be addressed. Falling off pace becomes the indicator for principal or district intervention with teachers and/or students.
- Adaptive online learning begins to play a vital role. The information on student learning—such as where they are having problems or where they need help—is invaluable. In addition, it serves as a validator in maintaining consistency in the understanding of proficiency across teachers and schools.

There were many questions about how to create prototypes of an accountability system designed to promote student learning, especially within the current policy framework.

Equity: Eliminating Our Tolerance for Inequality

Participants pointed out that the United States is producing the greatest inequalities to date, while we continue to propose that we are moving toward equality. Others raised the point that our country has a very high tolerance for inequality. Thus, as competency-based innovations and enabling policy conditions expand, equity must become an essential lens. To do otherwise runs the risk of reproducing the inequities of the time-based system.

Several aspects of ensuring equity were raised in conversations.

- One of the concerns rippling throughout the Summit was that a personalized, competency-based approach may result in some students being left behind or an increase in the achievement gap. Judy Jeffries from the Partnership for Next Generation Learning described the problem: "If we're not careful, we'll create more inequities in the system then we currently have. We must rethink the interventions and supports rather than just saying we need more time." Bror Saxberg expanded on this point—"Pace matters!"—with the suggestion that the goal should be to put students on their fastest path to results that matter. He suggested that as information systems develop in sophistication, data will drive an increasing rate of progression—students, teachers, and administrators should be, and can be, in a hurry.

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[4] EdSteps, a new web-based resource, is now available for measuring student growth. Developed by the Council of Chief State School Officers, the centerpiece is a public library of student work samples in key skill areas, including writing, global competence, creativity, problem-solving, and analyzing information. Student work is presented in a continuum—a gradual progression—from emerging to accomplished work or another searchable format. EdSteps will allow teachers, parents, and students themselves to measure individual students' progress over time and answer questions about whether students are on track to success. The work samples will help answer a central question for student growth: Where is a particular student now, and what should he or she do to improve? www.EdSteps.org

- Although a problem in the time-based system as well as a competency-based approach, ensuring consistency in academic standards for all students and across schools, districts, and states is particularly important to those who advocate for the most underserved students. New Hampshire has developed a validation tool to maintain academic rigor and included it in school approval reviews. The validation rubric includes elements such as relevance to content area, enduring concepts, and cognitive demand.
- One of the potential benefits (although some perceive it as a challenge) of competency-based learning is that it may make explicit the actual costs to help low-income students learn at high standards. Thus, the next question becomes, if we are dedicated to educational equity, will we be willing to invest in the high-quality learning environments that allow children to succeed in school? These learning experiences may not be school-based it all; we may find that background knowledge, learning in other areas such as music, arts, and sports, or focusing on issues that are relevant to their current lives is what will help children progress in school.
- Concern with the lack of diversity within the Summit and within next generation learning forums in general was raised. Participants suggested that we need to intentionally invest in leadership development, thus increasing diversity and expertise by building bridges with communities of color and networks serving special populations such as English language learners and special education students. Most of all, as leaders we all need to take responsibility for reaching out across racial and ethnic boundaries so that we can build a movement that draws on the diversity of experience and insights across our country.

Carnegie Unit: Creating Meaning for Students and Educators

As participants discussed the implications of de-constructing the Carnegie unit, there were many "aha's" as to the multiple functions it serves within the education system. The Carnegie unit plays a powerful role in managing transactions within the education system. First, it provides a unit of exchange to allow different schools and institutions to relate to each other, especially the transition from high school to college. Second, the Carnegie unit is based upon the amount of time that a teacher is in front of a classroom. It doesn't take into account how effective the teacher is, how much time and effort the teacher contributes outside the classroom, or how much time and effort students contribute.

> *In a proficiency-based system, teachers flourish as much as students.*
>
> – Proficiency-Based Instruction and Assessment, the Oregon Education Roundtable

Once the idea of eliminating the Carnegie unit is introduced, the discussion begins to focus on the changing role of educators rather than student learning outcomes. In Oregon, educators raised the fear that students graduating early would eliminate jobs, yet that only occurs if we operate on just one part of the value proposition. A state policy leader suggested that if we maintain the expectation that our students will continue on to even higher levels of academic work, even while

in high school, job reduction becomes less of an issue. The roles of educators become increasingly important for student-centered learning: coach, resource expert, facilitator, intervention expert, tutor, and even "concierge." Oregon passed Bill 300 to ensure that students sixteen or older could pursue education at state universities and community colleges while in high school. At this point, there is no reason to believe it will reduce the number of jobs, but it certainly means that there will be different types of jobs and that teachers may be doing their work in different ways.

However, there is reason to believe that the roles and responsibilities of teaching will change. Gloria Pineda from Diploma Plus described how competency-based approaches raise the bar. First, teachers are expected to help all students succeed in mastering academic skills, not just some of their students. Second, the scope of learning topics is expanded to include lifelong learning competencies. Thus, the job of teacher will change with greater emphasis on facilitating learning through assignment of learning tasks, performing formative assessment, and guiding students in the development of personal learning plans. It is likely that different types of jobs will develop as schools experiment with organizing human resources around student learning. New Hampshire is positioning itself for this possibility by replacing the word "teacher" with "educator" in its education policies.

Another concern is who is able to grant competency-based credit? If students are learning in the community, who is responsible for ensuring that the learning is at appropriate levels? New Hampshire has handled this issue by ensuring that teachers are responsible for granting credit. Yet this raises another matter as teacher education programs are generally unprepared in assessing lifelong learning standards. Other ideas are being explored, including community-based credentialing that is similar to a merit badge system.

With this increased insight into the functions that the Carnegie unit plays in maintaining the current educational system, the question arises: What becomes the unit of exchange if we eliminate the Carnegie unit? Do we need to look for another "container or unit of learning," one based on mastery, not seat-time? Participants explored how the Carnegie unit captures a social value of the investment of teacher time toward student learning. How will teachers understand their effectiveness and their value if students move on with little effort from them? He suggested that it is important to take the time to clarify the social values we want for our country as we rethink how we value and evaluate learning. Thus, if another "container" or unit of learning is to be created, it must hold value for teachers and students alike.

In the short run, one idea is to not eliminate the Carnegie unit but simply to redefine it. Courses are converted into competencies and learning objectives; end-of-course exams serve as summative assessments. New Hampshire has demonstrated that maintaining the course structure is a viable method for moving forward.

Personalization: Co-Designing with Students

Competency-based learning is inherently personalized as students progress upon their learning trajectory in a way that is unique to them. In addition, competency-based approaches quickly hit a wall without student co-design. Deeper learning—the development and application of knowledge—requires real-world experiences or project-based learning. One participant emphasized, "It is essential to bring student voice much more directly into the learning process." Paul Leather asserted that student-centered approaches were critical, especially for designing "complex performance

assessment, where you can demonstrate deep, deep learning." Gerrita Postlewait of the Stupski Foundation emphasized that "keeping student voice central is essential to ensuring that the traditional system is not reproduced." Participants repeated that student agency must be balanced with a clear focus on helping students achieve. The role of the educators will be critical in ensuring that students are progressing while still able to pursue the education that is most meaningful to them.

> *When there is authentic student agency—not just let students choose from the options adults give them—we can learn about our students' hopes and fears, what motivates them, what shuts them down, and the future to which they aspire.*
>
> —Kim Carter, QED Foundation

Even with a shared commitment to establishing student agency within a competency-based system, it will require creativity to fully integrate it into policy and standards of practice. New Hampshire tried to take the first step of introducing personalized learning plans into policy. Fred Bramante explained that they failed to do so when education administrators balked, fearing it would translate into an IEP (Individual Education Plan) for every student. New Hampshire continues to work toward establishing a personal learning plan for every student as a key design element.

Management Information Systems: Re-Engineering for Results

Some of the competency-based innovators started out with paper-based systems, soon finding it difficult to manage the abundant data generated on each competency and academic standard. As states and districts begin to think about scaling competency-based systems, the complexity of trying to build student-centered information management systems on top of the current top-down accountability information management systems arises. Cobbling together information systems leads to frustration, ongoing costs for troubleshooting, and inadequate feedback loops. Online learning providers, having the benefit of building information technology systems from scratch, developed more advanced technology infrastructure for competency-based learning. Virtual schools have content management systems tied to student data systems, many with abundant digital content resources and embedded online assessments.

Western Governors University (WGU) had the luxury of designing their information systems from scratch. Even then they went through several iterations. Jim Schnitz, Vice-President of Institutional Research at WGU, provided an overview of their system.

> *It starts with a standards database. This is behind everything we do in competency-based learning. The competencies have to be validated externally by professionals. The next step is building the assessment objectives and learning resources. These are independently aligned. Assessments are never aligned with learning resources. Assessments are totally independent measures of competencies.*
>
> *We use a customer relationship management system to recruit and enroll students. We also have a student information system with a student portal. The graduation plan drives the student learning plan so that everything they are doing is always tied to the goal of graduation.*

Other information systems designed for competency-based systems, including Educate used by Adams County School District 50 (Adams 50) and DP.net developed by Diploma Plus, have databases that teachers can use to select the competencies and learning objectives to design curriculum around. DP.net also does the translation to state standards and grading, easing the burden on teachers. Principals or coaches can quickly review and give feedback on curriculum. The information systems allow students to submit their work electronically and also offers virtual space for discussions between and among students, teachers, and principals.

Although the information systems integrate student information and standards-based learning, considerable challenges remain. First, schools must continue to interact with state reporting information systems. In Adams 50, teachers are required to use three different systems. The resources to integrate the systems have been difficult to come by. Many online and blended learning programs are well on their way toward integrated approaches that "plug and play." Open architectures for learning include content and standards databases, student information databases that show their progress on competencies, assessment engines, and virtual learning environments. States and districts may want to consider a shared and open-architected platform that supports competency-based learning approaches.

Furthermore, we are at just the beginning of understanding what information systems can provide to enhance the ability to respond to student needs. What should learning maps look like? Florida Virtual School wants to be able to deliver a system that identifies learning styles, interests, current knowledge, and skill acquisition. Ideally, competency-based information systems will be designed to support students with high mobility, often the most vulnerable students, so that the receiving schools can support continued academic progress on the personalized learning plan rather than having the transition push the student further behind.

Assessments: Where the Rubber Meets the Road

Discussions about assessments streamed throughout all the sessions at the Summit. There was agreement that formative assessments increased in importance in a competency-based system. There was agreement that educators should be careful to design assessments on specifically what they want to measure. There was enthusiasm for embedding assessments into the curriculum. There was commitment to the idea that assessments would become part of the learning process, providing meaningful feedback and support so that students could overcome academic challenges.

Concerns were raised about the way summative assessments are currently structured to be given only once a year. It was proposed that summative assessments should actually occur after a student had mastered materials, serving as a validation mechanism to show that standards were consistent across teachers, schools, and districts. Similarly, it was proposed that summative assessments should be delivered "just in time"—as soon as students are ready. Some participants suggested that greater modularization would be helpful so that students could demonstrate the material they had mastered in shorter periods of time, allowing a sense of progress and portability for those with high mobility. Most of all, participants at the Summit raised concerns about whether the assessment consortia were taking into consideration the possibility of competency-based, next generation learning systems.

Challenges were raised as well. A participant asked how a school could validate a competency for which no one in the school has the competency. He gave as an example a student learning Chinese

in an independent course and asking for credit for speaking a foreign language, yet no one in the school knows Chinese to determine that he had in fact mastered it.

One participant cautioned that assessing lifelong learning competencies can be complicated because of the personal and cultural bias that we all bring to our work. Teachers are not trained to assess this type of skill, nor do we all have the same idea of what it looks like. For children from different cultures or impoverished families, what could look like laziness to others might only be from not having a bed to sleep in and therefore trying to get by without enough sleep. What might look like poor attendance and irresponsibility could actually be taking responsibility for getting siblings fed and to school every morning.

Synchronizing Policy and Practice: New Approaches to State Policy

Gene Wilhoit, Executive Director of CCSSO, offered insights into how the quality of state policy differs between maintaining the traditional system and building the next generation of learning. Traditional education policy seeks clarity so that it can be effectively implemented and monitored. Policies that open the door to innovation will need to have new characteristics. Wilhoit outlined a new set of principles as a state policy framework for next generation learning.

- **Drive Policy by Student Learning Outcomes:** Focus on student learning and student learning outcomes. First and foremost, policies should be made to support the needs of students.
- **Guard High Academic Standards:** States will need to be vigilant to ensure that academic expectations do not slip, resulting in lower achievement for groups of students. Focus on equity with high expectations for all students.
- **Expand Student Options:** State policies should expand, not limit, the options that students have to reach learning outcomes.
- **Create Shared Vision:** Policy development cannot be top-down. It will be important to keep communication open, inviting stakeholders to contribute to the vision and the steps to get there.
- **Offer Districts and Schools Flexibility:** Be clear about desired outcomes and then provide incentives for educators to take different pathways to achieve the goal. Remove process rules and regulations in order to allow and encourage innovation.
- **Commit to Continuous Improvement:** Policy will need to evolve as we learn more about the dynamics of next generation learning, requiring ongoing improvement efforts.

All participants agreed that the introduction of competency-based learning and other elements of next generation learning cannot be done through top-down policies or by using compliance as leverage for change. Instead, states must create space for organic development and expansion of innovations. Furthermore, experiences from the leading states show that without incentives and supports, districts and schools may be hesitant to pursue innovations. Thus, states need to create peer learning networks, technical assistance, and rewards for taking risks.

States can use a variety of techniques to let innovation take hold: convening innovators, creating innovation zones, establishing cultures of continuous improvement, defining new performance metrics based on desired outcomes, and setting policies and funding formulas that create incentives for innovation and the desired behaviors.

There are five roles that the state can play that are critical to supporting innovative growth, ensuring that policy is informed by innovative practice, and guarding against slippage of academic standards and inequities.

- **Create Innovation Space:** The introduction of competency-based systems and other elements of next generation learning cannot be done solely through top-down policies or by using compliance as leverage for change. Instead, states must create space for organic development and expansion of innovations. States can use a variety of techniques to let innovation take hold, including enabling the policies as described above: convening innovators, creating innovation zones, establishing cultures of continuous improvement, defining new performance metrics based on desired outcomes, and developing policies and funding formulas that create incentives for innovation and the desired behaviors.
- **Provide Catalytic Support and Knowledge Transfer:** Funds should be dedicated to peer networks that can support rapid exchange of knowledge, leadership development, and technical assistance. These networks can also expedite creative work such as developing and disseminating options for lifelong learning competencies to reduce the cost of every district designing their own.
- **Engage Communities:** Communities need to be engaged early and often. They need to understand the reasons, goals, and elements of the change to competency-based learning. Most of this work will be done at the district and school levels, but states can help by supporting the development of effective communication tools and providing a website that districts can use to help educate communities.
- **Protect High Standards:** States have the unique responsibility of guarding high academic standards and ensuring that students are getting the supports they need to reach them. Developing mechanisms to ensure that there is consistency across schools and districts will be important in the long run, but it is absolutely critical in the early stages of innovations.
- **Offer Adaptive Leadership:** State leadership can play a critical role in supporting innovative districts by using the bully pulpit, recognizing the leaders that are taking risks, and engaging statewide associations early on in vision-building. In addition, they can assist districts that need more time to build community support by offering flexibility in reporting.

One of the most powerful roles a state can play is creating collaborative space for the development of competencies and learning objectives. As states come face-to-face with the implementation of the Common Core State Standards, many opportunities and questions arise. Several examples raised at the Summit are described below.

Well-Designed Competencies: Given that the innovations are still at early stage of development, the field has not agreed upon what makes a well-designed competency. Although some attributes such as learning objectives need to be explicit and measurable are clearly agreed upon, others are less defined. Should competencies be designed to inspire students? Catalyze student agency?

Can they be designed to ignite creativity within our schools and our students' minds? Are there ways of designing them around long-term measures of student success? Can they be positioned so that they are meaningful for the workplace, backing them into a progression of school-based levels?

In creating competencies, states and districts may want to begin to move beyond a linear approach to standards. In offering more complex tasks, competency-based systems challenge the traditional, discrete and sequential notion of standards. It will be important to explore the natural clusters of standards that are highly related to each other.

If innovators and states are all designing their own competencies and learning topics, where does this leave us? It takes time and money to develop competencies, yet we want to make sure that each school identifies them as meaningful, not simply a bureaucratic document. What about students with high mobility, such as those who are migrant, homeless, in child welfare or juvenile justice systems, or simply poor? Can we create state or even national competencies that provide some portability?

Core Competencies: The number of academic standards that have been generated by national organizations and states can be overwhelming. David Yanoski of Marzano Research Laboratories (MRL) suggested that based on a study by MRL the system would need to be changed from a K–12 to a K–22 system in order to adequately teach all standards to mastery. This is certainly a recipe for failure. The Common Core creates a different starting point, focusing on the most important standards. The next step is to translate the standards into core competencies. States can be helpful in identifying a shared set of core competencies that all districts will be building upon. This is also helpful for establishing portability, a key ingredient for ensuring that students with high mobility will benefit directly from a competency-based system.

Lifelong Learning Competencies: The Common Core includes application of knowledge through high-order skills. However, there are other skills that are important to all students but particularly critical for students living in areas of concentrated poverty and/or violence. These include social-emotional and navigational skills that help them overcome trauma and engage others in helping them to manage highly complex dilemmas in their lives. In addition, workforce and career development are critical for finding jobs to support families and increased motivation through the broadened horizons. For students that are first in their families to go to college, gaining knowledge about the college application and financial aid process is imperative. States can facilitate the development of shared lifelong learning competencies, rubrics, and professional development so that educators and community members can work together to support students.

Shared Vision: Investing in the Process

Those state and district leaders that had substantial experience in creating competency-based systems constantly reminded us that we had to engage the communities early and often. The true cost of community engagement is rarely budgeted, placing it at risk of being less than adequate.

Engaging parents and the broader community in thinking through what they want for their children was an important step. Participants agreed that there needed to be high levels of "buy-in" by schools and teachers before moving forward. Adams County 50 postponed implementation for a year until they had 80 percent of their teachers in support of the transition to standards-based learning.

Sustainability will always be an issue with competency-based learning, as it is in any education reform. Thus, constant leadership development will be necessary to ensure that elected officials continue their support. Participants agreed that it was important to explore ways to work together to create greater political commitment and political cover. In addition, participants wanted to learn how to communicate competency-based learning and the other elements of next generation learning to the broader community without causing confusion.

Higher Education: The Missing Partner

It is difficult enough to bring about changes within the K–12 system without simultaneously engaging higher education. Yet, Fred Bramante suggested that in reflecting on New Hampshire's experience, they had made a mistake in their early stages of building a competency-based policy by not engaging higher education early in the process. There are four areas that should be considered in higher-education policy.

- Access to higher education: Students should have total access to college-level courses once they have demonstrated mastery of college-ready skills. This requires streamlining K–12 and higher-education funding and teacher qualification policies so that students can be well on their way in college credits by the time they complete high school. Several states are considering allowing state K–12 funding to follow the student into the first year of higher education.
- Admissions: Higher-education admissions policies and practices need to be revised to be compatible with competency-based transcripts. For example, current transcripts are unable to show advanced competencies within the seat-time-based GPA system.
- Teacher training: Teachers should be trained in competency-based practices, including assessing lifelong learning competencies. This will enable much more rapid implementation in schools and districts.
- Competency-based post-secondary courses: Higher-education programs can also benefit from competency-based instruction. Developmental education should be competency-based so that students can rapidly fill their skill gaps and master the materials to let them into credit-bearing courses. Bill Evenson suggested that higher education can engage in the "tuning" process that clarifies the specific competencies students should know when they major in a subject.

Susanne Daggett from the Oregon Department of Education indicated that the state legislators are exploring ways to expand options for students. "The different funding streams do create a bit of a road block. But people are trying to think about how the money should follow students that are ready to move on to college-level courses."

Unlocking the System

Facilitated by Susan Patrick, a panel offered a provocative set of insights and challenges into unlocking the education system. The panel members included:

- Jim Shelton, Assistant Deputy Secretary of Innovation and Improvement
- Michael Horn, Executive Director of the Education Practice at Innosight Institute
- Gene Wilhoit, Director of Council of Chief State School Officers
- Sajan George, CEO of Matchbook Learning

Alignment with the New Value Proposition

All the panelists agreed that aligning incentives with the new value proposition was critical for driving the transformation of the education system. "The question is how to get student performance in the center of everyone's incentives so they are focused on that one outcome and that's the only one that matters," offered Shelton. Michael Horn suggested that all the integrated providers of online learning "have assembled all of their processes, resources, and value propositions around a competency model. Seat-time just doesn't make any sense when you talk about online learning."

A new business model was proposed to help drive transformation. Horn suggested that the most powerful thing we can do is to incentivize the changes, not "rely on pure supply and demand based on price. We need to fill contracts based on the results that we want to see… Performance-based contracts naturally putting in the incentives to have constant and continuous improvement will really start to drive it. We've never had that before because our whole system is built on inputs."

A competency-based system embraces student learning above all other social values. It operates on a new value proposition:

By aligning all of our resources (in schools, the community, and online) around student learning to enable students to progress upon mastery, our country can increase productivity in the education system, while simultaneously raising achievement levels overall and reducing the achievement gap.

George suggested that the school turnaround, online learning, and supplemental education service space are ripe for business model innovation with performance-based or outcome-based payment. "If you actually have this model, then everyone's incentives are aligned. You are not paid because students show up—you are paid based on whether or not they made progress."

Horn expanded on the idea of aligning business models as a way to ensure that the education industry would produce valuable research. "The market does not reward research because we do not pay based on learning outcomes. The system does not reward learning. It's not about learning right now. So if we can get the incentives right that will go a long way in making the ARPA-ED research be rewarded."

Different Ways for Moving Forward

Michael Horn suggested that there are two different ways to advance competency-based learning. One is to think of competency-based approaches as a gateway to next generation learning, requiring us to do the "heavy lift" of systemic change. He suggested that to expect the current system to change itself is a form of "self-cannibalization."

Another approach is to consider competency-based learning as a natural conclusion of a customized system. "If we can create enough models of customized learning, students themselves will put pressure on the system. Imagine students saying 'I'm flying through this stuff' and simply demanding the ability to move on."

> *The reality is that what we do right now in this window of opportunity will be the primary determinant of whether (10 years from now) we have virtually transformed our system or that we are only slightly better. I don't think that the forces at work right now are going to replicate themselves in the foreseeable future. The system is unlocked. Frankly, as things become more stable, it will likely start to refreeze.*
>
> – Jim Shelton

The Power of the Customer

In discussing implications of a customer-driven market or democratization of the market, challenges to how we think about ways to move forward were raised. Sajan George described what this might look like. "What will be unbounded is the democratization of the system. The dollars will follow pupils because most states and most school districts will realize that they can't continue to increase funding for education at the levels that they had before. When other industries have faced this challenge, they've decided that the person best able to decide where the premium offering should be is the customer."

George reminded us to be mindful that democratization will challenge many of our assumptions. "It is important to remember when we talk about democratization, that even the best education reformers, even folks in this room, look at the challenges, whether it's competency-based learning or something else, from a very top-down perspective." He went on to explain that "there are conversations about creating portfolios, pilots, and innovation options for school districts within states, for schools within school districts, and for teachers and students within schools. The reality

is in 10 years students will actually make these choices… They will basically create a portfolio of schools for themselves. If they want to take a Spanish course, then they can take it from a Spanish teacher living in Spain."

He suggested that we don't have to spend extraordinary amounts of time and money on building learning algorithms. "We can spend a lot of time and energy trying to figure out the best learning modality for students, or we can just create an array of options for them, allowing them to optimize for themselves… We just need to make sure that we create the array of options. We'll get smarter on what types work best for students and in what environments. But we'll do that in hindsight rather than foresight."

The power of the customer is even important to accelerating the transformation process. Horn encouraged innovators to act like customers, demanding from state government what you want to see. If you see a blockage, let state policymakers know right away.

Emerging Opportunities

Gene Wilhoit encouraged us to think of the Common Core State Standards as a foundation around which we can innovate. He cautioned that there are many that simply want to use the standards as a way of extending the traditional, linear, factory model. "However, they in fact can be liberating rather than confining. If we are innovating, we should expect to find divergent ways to reach the standards. With successful expansion of educational opportunities, our job is to help learners match opportunities with their needs, getting them all to the end game."

Jim Shelton raised the topic of opportunities with students that are underserved by the current system. "The biggest opportunity for us to take advantage of the non-consumer right now is in the third of the kids that fail to graduate, the ones that are already in alternative schools, and our kids in the juvenile justice system… There are few states in which we are living up to our educational obligation to students in the juvenile justice systems. So there is an opportunity to take advantage of the flexibility that you automatically have in those systems to produce very different models of instruction and build the kind of infrastructure we need at scale."

School turnaround provides an opportunity and a market, given the federal funds directed toward the bottom five percent of schools. Sajan George pointed out that "in three of the models—turnaround, transformation, and restart—you are able to change the curriculum, assessments, professional development, length of school time, school day, school year, and leadership. While the RFP's that are being issued by states and school districts are not specifically requesting competency-based models or hybrid models, you can actually fit your model within those parameters."

> *The budget crisis is increasing areas of non-consumption where you have to reach for other solutions. The nature and depth of the crises will create a spark for innovative solutions that look at reformulating how to deliver education at a much higher productivity level. So what the states have to do is create the space as solutions are introduced.*
>
> – Michael Horn,
> Innosight Institute

George suggested that there are new models of blended online schooling around the corner. Although the instructional delivery systems may vary, there will be parent demand for their children to have a safe place to learn. Horn reinforced this point, referring to his research that students solely using virtual schooling from home will cap at no more than 10 percent of the student population. Blended learning will likely serve the remaining 90 percent over time.

Whether it is a school or a community center like the Tampa Virtual Learning Center in partnership with the YMCA, the buildings and staff skilled at high engagement will be needed to meet many of the elements of education, including child care, socialization, youth development, and hands-on experience like arts and music. Horn described his vision: "You will have this community center school model in the future. It's flexible. Students can come in as they need to, with their families, learn material online as need be, and are supported by mentors and learning coaches."

Increasing the Rate of Innovation

In addition to aligning incentives around an outcome-based system that keeps student learning at the core of policy, the panelists bounced around several ideas to accelerate the rate of innovation.

Building on the ideas of how to synchronize policy with practice, Wilhoit advanced the idea of being opportunistic. "We need to grab hold and take advantage of opportunities. We don't have the luxury of thinking about pilots—they take too long. We are about systems change, and we are about large-scale change. We've got to begin to think about how we take advantage of the pockets of excellence that are out there and transport them, transform them into standards practice within the system." Shelton reinforced this point, encouraging participants to move forward without getting bogged down by trying to get everyone to see the world the same way we do.

Wilhoit also offered the suggestion that investing in supports and aligning incentives would expedite systemic change. "We haven't put enough supports and incentives behind the opportunities that would draw people towards innovation. So they've not yet reached the point where they're producing the kinds of results that we want or at the pace that we want."

Shelton suggested that we need mechanisms to support coordinated efforts and knowledge sharing. "People are struggling with the same practical implementation issues, whether it's the system to support competency-based models or specific challenges such as how you schedule to allow for the kind of quick changes in grouping that need to happen. These are the kinds of issues people are struggling with in their silos the way we tend to in our sector over and over again. Unless we figure out how to get information to travel more quickly so that we can make progress more quickly, we're going to stumble… We need to draw on the entrepreneurs in the room. We need to build the common systems and get them out there quick, fast, and in a hurry."

Michael Horn and Susan Patrick emphasized that we need to learn from other countries. Patrick challenged us by describing international examples. Turkey created the capacity to serve 15 million students online in three years, while after 14 years, the United States has only 2 million students online. China, in recognizing that its resources were locked up in textbooks, is creating open-education resources and digital content. Horn directed us to look at "emerging countries, developing countries, where there were literally no education systems. You're going to see some cool mobile learning systems start to come up. That's where the real breakthrough innovation is going to ultimately happen because the need is so acute."

The Federal Role in Unlocking the System

Although federal policy has yet to be created to promote competency-based approaches, the U.S. Department of Education has taken small steps toward integrating competency-based approaches into competitive programs, including Race to the Top and I3 competitions. Jim Shelton suggested that there is little within the federal context that directly prohibits competency-based approaches, with the policy framework positioned at the state level. For example, the expectation that states should implement annual assessments does not demand that they are set at a specific time of year or that they are age-based.

Yet several examples were raised that suggest that federal policy is indeed shaping opportunities for expansion of competency-based approaches. Rick Ogston, Executive Director of Carpe Diem Collegiate High School, humorously described the impact of federal policy on local innovation. He explained the irony of trying to be innovative within an education system shaped by No Child Left Behind.

> *From my perspective, the system is not yet unlocked. The key is in the cylinder, but it is not unlocked. I am in a position to go and ask permission to be innovative. Then the question comes, "What is the research basis for your innovation?" So I can't do it unless I prove it works. I'm asking permission from people who are afraid to take risks because of the accountability to the federal government. Welcome to my world.*

Ogston gave another example of how the definition of "highly qualified teacher" is constraining in a competency-based, blended learning model. He is unable to draw on instructors from universities or other states, which is preventing him from getting the "best of the best" for his students.

Examples were shared of how the federal government is still not operating consistently in support of the competency-based effort. One example is how the U.S. Department of Education responded to the concern of higher-education diploma mills. Michael Horn explained that by using seat-time as a tool, concretely defining the credit hour, they locked in the higher-education system, making it more difficult to respond to the competency-based models coming from K–12.

Jim Shelton encouraged participants to let him know if they did find obstacles in federal policy, regulations, or funding processes. He encouraged states to "step up to the plate" as it is state policies that can drive toward competency-based innovations.

We want to create a student-centric system, yet we go about that by a very top-down, adult-oriented approach. It just doesn't make any sense. Students are going to be our best allies and advocates for the kinds of learning that we are envisioning.

– Sajan George

Conclusion

The Summit was the first time that innovators and policy leaders had convened to share their expertise, knowledge, and vision. These were initial conversations, which are sure to continue within states and districts over the coming year. As more states build experience in competency-based policy and approaches, there is sure to be greater insight, more experience to inform the tough issues, and a stronger sense of the strategies that will move us forward.

In the coming year, there are five things that need to be done consistently to accelerate the transformation of our educational system.

- Include innovative space for competency-based and next generation learning in every policy and initiative.
- Develop diverse leadership that can walk in both worlds, improving the traditional system while advancing next generation approaches.
- Draw on leadership approaches that focus on the behaviors that we want, not getting bogged down in the different rationales, terminology, or rhetoric. The Summit demonstrated that we can and must move forward on competency-based approaches without stumbling over the different language used to describe competency-based approaches and the complementary concepts of next generation learning.
- Ensure that traditionally underserved students are benefiting from the new models so that we do not replicate the inequity of the current system.
- Most importantly, make sure that student learning is driving all of our decisions, each and every one of them.

Keeping our eye on the prize is the key to unlocking our education system for new and wonderful possibilities in our communities and our country.

Appendix: Participant List

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Jaquelin Hume Foundation

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Diploma Plus

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City Prep Academies

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Kaplan

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Western Governors University

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Connections Academy

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Jobs for the Future

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Consultant Adams School District 50

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MetisNet

Webster Thompson
TaskStream

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Nelson Vincent
University of Cincinnati

Elliot Washor
Big Picture Learning

John Watson
Evergreen Education

Chris Weinman
Board of Cooperative Educational Services

Ephraim Weissten
Schools for the Future

Matthew Wicks
International Association for K-12 Online Learning

Gene Wilhoit
Council of Chief State School Officers

Carla Williamson
West Virginia Department of Education

Rebecca Wolfe
Jobs for the Future

David Yanoski
Marzano Research Laboratory

Appendix: Resources

State Resources

Council of Chief State School Officers

www.ccsso.org

New Hampshire

http://www.education.nh.gov/innovations/hs_redesign/index.htm

For more information on the validation rubric, go to www.education.nh.gov/innovations/hs_redesign/competencies.htm

Ohio

http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEPrimary.aspx?page=2&TopicRelationID=1864

Oregon Proficiency Project

www.k-12leadership.org/professional-development/proficiency-project

District Resources

Adams 50, Colorado

http://wiki.adams50.org/mediawiki/index.php/Main_Page

Florida Virtual School

www.flvs.net

Lindsay Unified School District, California

http://www.lindsay.k12.ca.us/

New York City

http://schools.nyc.gov/community/innovation/izone/default.htm

New York City's iZone, a Center on Reinventing Public Education's Working Paper www.crpe.org

Reinventing Schools Coalition

www.reinventingschools.org

School Models

Carpe Diem

www.cdayuma.com

Diploma Plus

www.diplomaplus.net

Highland Tech High

http://www.highlandtech.org/

Kunskapsskolan

http://www.kunskapsskolan.se

Newfound Regional High School

https://sites.google.com/a/sau4.org/nrhs/

Western Governor's University

http://www.wgu.edu/

Virtual Learning Academy Charter School

http://www.vlacs.org/

Young Women Leadership Charter School

http://www.ywlcs.org/

Youth Connection Charter School Virtual High School

www.k12.com/yccs/results/success-stories/

Papers and Resources

Available at American Youth Policy Forum: aypf.org

- A New Model of Student Assessment for the 21st Century, Camille Farrington and Margaret Small. 2008.
- Building Competency-Based Pathways: Success and Challenges from Leaders in the Field

Available at iNACOL: inacol.org

- Clearing the Path: Creating Innovation Space for Serving Over-Age, Under-Credited Students in Competency-Based Pathways
- It's Not a Matter of Time: Highlights from the 2011 Competency-Based Summit
- When Success is the Only Option: Designing Competency-Based Pathways for Next Generation Learning

Available at Innosight Insitute: innosightinstitute.org

- Wichita Public Schools' Learning Centers: Creating a new educational model to serve dropouts and at-risk students
- Florida Virtual School: *Building the first statewide,Internet-based public high school*

From Reinventing Schools Coalition: www.reinventingschool.org

- Delivering on the Promise: The Education Revolution by Delorenzo, R, Battino, W, Schreiber, R and Carrio, B. Gaddy.
- From Lumina Foundation
- Information on the tuning process for higher education can be found at http://www.luminafoundation.org/newsroom/topics/tuning-adventures-in-learning.html

Blogs and Websites

International Association for K-12 Online Learning website and iNACOL Competency-Based Wiki
www.inacol.org

EdReformer
Edreformer.com

Youth Transition Funders Group Connected by 25
Cby25.blogspot.com

TOLL-FREE 888.95.NACOL (888.956.2265) DIRECT 703.752.6216 FAX 703.752.6201
EMAIL info@inacol.org WEB www.inacol.org
MAIL 1934 Old Gallows Road, Suite 350, Vienna, VA 22182-4040

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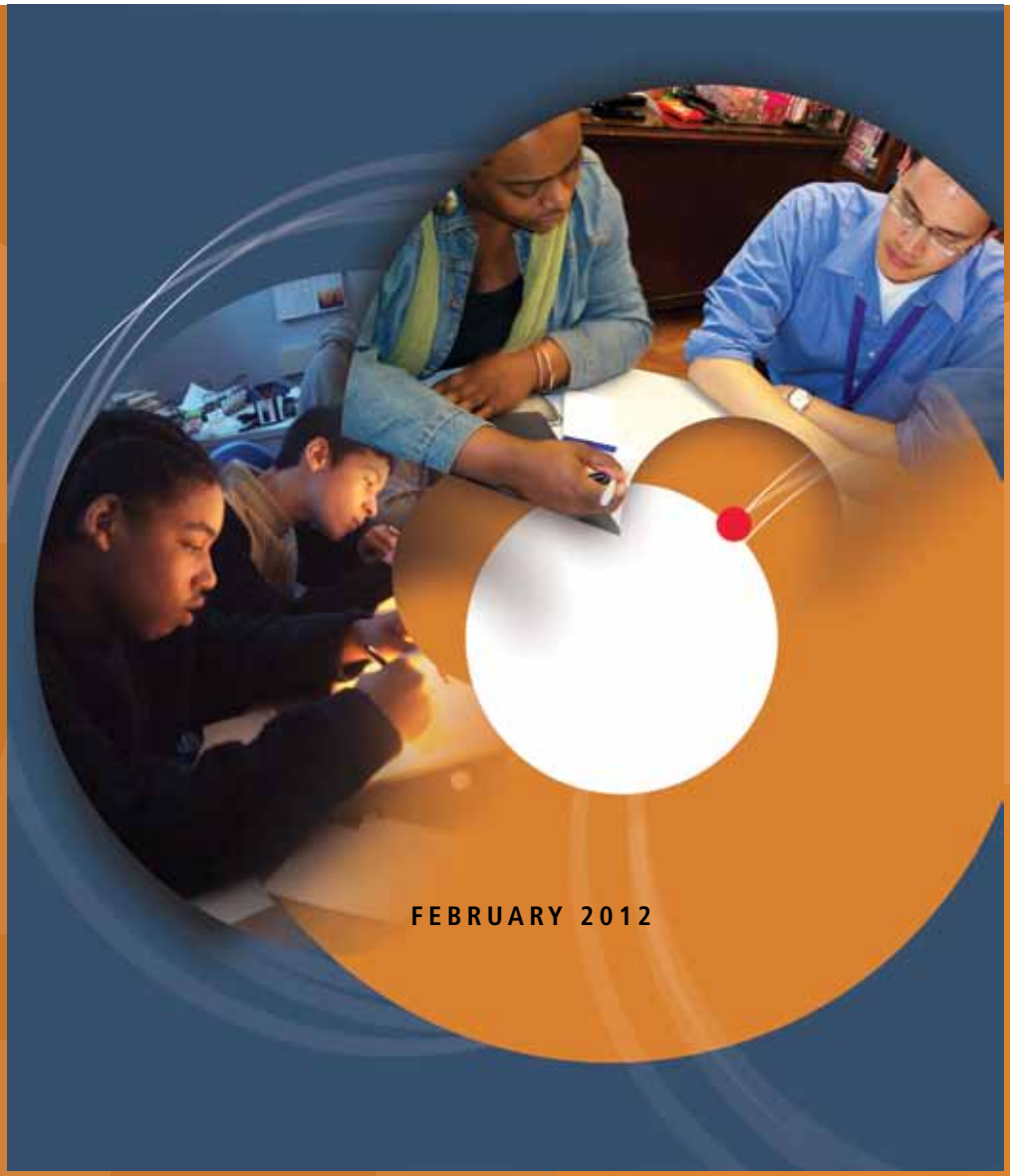
Center for Collaborative Education

Quality Performance Assessment

QUALITY PERFORMANCE ASSESSMENT: HARNESSING THE POWER OF TEACHER AND STUDENT LEARNING

Christina Brown and Pascale Mevs



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www.qualityperformanceassessment.org

Q P A

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INTRODUCTION

Since the fall of 2008, the Center for Collaborative Education (CCE) has partnered with the Nellie Mae Education Foundation (NMEF) to explore the potential power of performance assessments to transform student learning and teacher practice. Through the Quality Performance Assessment Initiative (QPA), we have collaborated with a diverse group of 20 schools to strengthen and document local assessment systems and to implement common performance assessments across schools. The schools include urban, rural, and suburban schools, and represent charter, Pilot[1], and district schools across Massachusetts, New Hampshire, and Rhode Island.

QPA has developed the following definition of performance assessment:

Quality Performance Assessments are multi-step assignments with clear criteria, expectations and processes that measure how well a student transfers knowledge and applies complex skills to create or refine an original product.

Quality Performance Assessments: Harnessing the Power of Teacher and Student Learning, and the accompanying *Quality Performance Assessment: A Guide for Practitioners*, describe specific actions and strategies for faculties as they undertake the challenge of developing a strong local assessment system with performance assessment as the cornerstone. The stories from the field share the experiences and entry points of three participating schools.

The Need for Quality Performance Assessments

The purpose of any assessment is to provide meaningful information about what a learner knows and can do. But what kind of information and how useful it is depend on the nature of the assessment. While current high stakes standardized tests provide information to state and district leaders to help them identify areas needing improvement and gaps in achievement of standards, they do not provide timely, useful feedback to teachers and students (Stiggins, 2008). Students and teachers need continuous focused data to know what students are learning now and what they need to learn next.

Current standardized tests do not do a good job of assessing complex, multi-step intellectual tasks that are at the heart of the 21st century skills all students need. Teacher designed performance assessments that are linked to curriculum and instruction have the potential to provide the feedback that is so crucial to improving student learning and achievement.

When teachers—professional practitioners who are closest to the learners—are trained to be experts in developing and using assessments, we will see dramatic strides towards closing achievement gaps.

The recent adoption of the Common Core State Standards (CCSS) by 45 states has placed significant attention on the assessment of student performance at the national and state levels. As Secretary of Education Arne Duncan noted in a 2010 press conference, "bubble tests" have failed, and higher quality assessments are needed to "better measure the higher order thinking skills so vital to success in the global economy of the 21st century and the future of American prosperity" (Duncan, 2010).

ENGAGING IN MEANINGFUL WORK

Seniors at Fenway High School in Boston, Massachusetts, are expected to write and present a position paper that demonstrates their ability to think deeply about a subject and to write meaningfully. The Senior Position Paper is aligned with the Common Core State Standards for English Language Arts as well as with the Fenway Habits of Mind—perspective, evidence, connection, relevance, and supposition. To graduate, seniors must present and defend an idea, write persuasively, use appropriate voice, conduct relevant research, use appropriate citations, and revise their work. Common rubrics support this work and shape teacher practice and student expectations at each grade level by fostering common understanding. Grade-level expectations are further solidified through the creation of anchor papers used by teachers and students. (See "Story from the Field" on p.15)

[1] Pilot schools are unionized, district schools that have charter school-like autonomy over key areas: budget, curriculum and assessment, governance, professional development, school calendar and scheduling, and staffing.

Rigorous standards outlined in the Common Core State Standards set a new target ensuring that all students are ready for college and career. Considering that 40 percent of first year college students need to take at least one remedial course upon enrollment, much work needs to be done before this new target is met (Conley, 2007).[2] This statistic demonstrates a large gap between public K-12 school assessment of college readiness and higher education measures of actual readiness.

Regardless of the standards or the assessments that measure them, all students should have the opportunity to engage in meaningful work that prepares them for the 21st century workplace. The local level—within each school—is where we must ask: Is this assessment meaningful to students? Does this assessment measure real world skills and knowledge? Does this assessment provide feedback that motivates students to continue learning? The new standards and assessments create a seismic shift in the national assessment conversation. However, the corresponding shift in the achievement of our nation's students will occur only if we use new standards to rethink the intersections of teaching, learning, and assessment within each school and classroom and focus on deeper understanding. Practitioner-developed performance assessments must be a large part of the equation if assessment is to help all students in the United States achieve the prosperity of which Secretary Duncan spoke.

Policy experts Chester Finn and Michael Petrilli caution, "Standards describe the destination that schools and students are supposed to reach, but by themselves have little power to effect change. Much else needs to happen to successfully journey towards that destination" (Finn and Petrilli, 2010, p.2). If the destination is college and career readiness for every student, it is critical that schools prepare each student for this journey.

The reality of accountability for local districts and schools is clear. The simultaneous transition by 2014 to a set of new, more complex standards and a new, more complex test designed to measure those standards requires that districts, schools, teachers, and students begin preparing now. By developing and strengthening the local assessment systems today, schools and districts can create the foundational skills teachers and students will need in the future.

Quality Performance Assessments are multi-step assignments with clear criteria, expectations and processes that measure how well a student transfers knowledge and applies complex skills to create or refine an original product.

[2] David Conley defines college readiness as "the level of preparation a student needs to enroll and succeed—without remediation—in a credit-bearing general education course at a postsecondary institution" (Conley, 2007).

A FRAMEWORK FOR HIGH QUALITY PERFORMANCE ASSESSMENT SYSTEMS

The challenging work of developing and learning to use high quality performance assessments to make decisions about curriculum and instruction cannot be done by teachers or schools working in isolation. CCE's Quality Performance Assessment (QPA) Initiative emphasizes the implementation of high quality common performance assessments[3] across schools to drive professional development in assessment practice and improve teaching and learning of 21st century and higher order thinking skills.

In anticipation of the new assessments aligned to the CCSS, the QPA Initiative supports the incorporation of common performance assessments, aligned to English language arts and content literacy Common Core State Standards, into existing teacher practice. Our goal is to use the lessons from this first discipline to extend the model to mathematics, science, and social studies/history in the future.

Strengthening the assessment literacy of all educators improves every aspect of teaching and learning. Teachers possess assessment literacy when they understand "the difference between sound and unsound practices in assessment, evaluation, and communication" (Stiggins, 1999). Assessment experts from the Forum for Education and Democracy (Wood, Darling-Hammond, Neill, & Roschewski, 2007) note ongoing formative assessments, including performance assessments, can be "responsive to emerging student needs and enable fast and specific teacher response, something that standardized examinations with long lapses between administration and results cannot do." Performance assessments can provide meaningful, real time information for students, teachers, parents, and administrators, and can be a springboard for improving teacher practice. They also note, "As teachers use and evaluate [performance assessment] tasks, they become more knowledgeable about the standards and how to teach to them, and about what their students' learning needs are (Wood, et al. 2007)."

Student learning is also enhanced during performance assessment as students adjust their strategies and make timely corrections in response to targeted feedback from their instructors. This "assessment for learning," differs from traditional assessments that function as a separate measurement of learning. Thus, local assessment systems that include performance assessment have the potential to improve both student learning and teacher performance. Further benefits of assessment systems with embedded performance assessment include greater teacher buy-in, increased teacher collaboration, and increased capacity to make mid-course corrections based on formative data (Wood, et al. 2007). When teachers are engaged as designers of performance assessments and skilled assessors of their students' performance, the impact on curriculum and instruction can be profound.

By building school-wide assessment literacy and encouraging teachers and school leaders to take ownership of the local assessment system, the QPA Initiative lays the foundation for strong local assessment practice, creating a bridge to meaningful learning, college and career readiness, and success on the next generation of assessments.

Fundamental Elements of Quality Performance Assessment

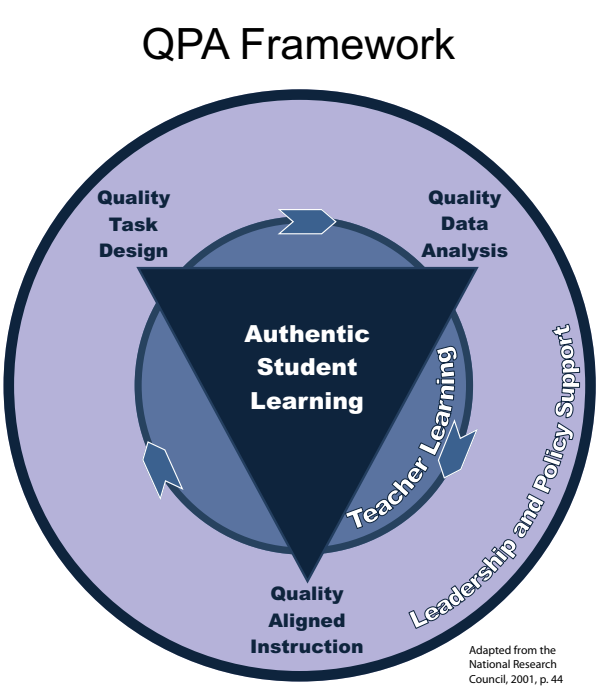
The purpose of the QPA Framework[4] is to provide guidance to teachers and administrators on how to design a performance assessment system. It describes a set of processes that can be implemented over time. Many aspects of the QPA Framework can be integrated into an existing system without a comprehensive overhaul. The following elements guide the work of creating quality performance assessments:

- **Aligned Instruction**—To gain knowledge and skills, all students need instruction, based on college and career readiness standards, that is accessible to their learning strengths and needs.
- **Task Design**—Valid assessment tasks include determining appropriate levels of content and cognitive complexity, setting clear criteria for success, and ensuring accessibility for all students.
- **Data Analysis**—By examining student work and score data, practitioners infer important information for planning future instruction and assessments.[5]

[3] We define common performance assessments as those in which the same assessment is administered to all students in a grade and subject across multiple classrooms, schools, or districts.

[4] Readers can access the complete version of the QPA Framework in the Appendix.

[5] The criteria are aligned with the three vertices of the National Research Council Assessment Triangle: Cognition, Observation, and Interpretation (National Research Council, 2001)



The graphic above illustrates how these components form a cycle with authentic student learning at the center. QPA defines authentic learning as learning that is meaningful to students, measures complex skills and content in multiple modes, and is transferable to new situations. It is critical that the standard for proficiency is clear to students and that clear feedback is provided to improve performance.

Essentials for Success

As schools undertake the important work of performance assessment, three Essentials must be in place to ensure successful design and implementation: technical quality, professional communities of practice, and leadership and community support (Tung and Stazesky, 2010).

TECHNICAL QUALITY

High quality performance assessments must have *technical quality*. They must be valid, reliable and sufficient. *Valid* means the assessment measures what it was intended to measure. *Reliable* means a group of teachers (or scorers) can agree on what a rating means and score it the same way. *Sufficient* means a student has been given a complete opportunity to demonstrate mastery. Assessments must be aligned to standards and designed to produce evidence of student learning. Without technical quality there is no guarantee an assessment system has evaluated student learning fairly and completely. When there is technical quality in assessment, teachers become aware of whether or not they are in fact teaching what is being assessed, and can adjust their instruction accordingly.

PROFESSIONAL COMMUNITIES OF PRACTICE

Implementing an effective performance assessment system requires a cultural shift as well as a deepening of professional knowledge and skills. Teachers need to learn to use new tools to develop and implement performance assessments, and to score work together so they can internalize common expectations and score with consistency. There must be ongoing conversations focused on expectations, student potential, the role of effort in performance, and identifying teacher practices that need to change. This work takes time and trust in order to de-privatize teaching practice and encourage teachers to share teacher and student work. Because consistent scoring of performance assessment occurs in an environment where practitioners can question expectations for students and critique the instructional practice of their colleagues, de-privatization requires a collaborative school culture with a non-defensive faculty. District and school leaders must ensure there are ample resources and time to engage faculty in professional development and in building effective communities of practice.

Investing in the creation of teacher-led assessment systems is the only way to ensure that our students will learn the skills outlined by the CCSS. Such systems, reflective of teacher expertise, will ensure that curriculum, instruction, and assessment are closely aligned and result in authentic student learning.

The deep engagement of teachers with performance assessment must start in pre-service programs so that new teachers are prepared to implement meaningful assessments. Teacher education programs can create communities of practice where student teachers align, design, and analyze quality performance assessments before their first teaching assignment. Engaging in such rich tasks together has the potential to create the next generation of teachers who see collaboration around assessment and instruction as part of their professional responsibility.

COMMUNITIES OF PRACTICE IN ACTION

In the Pentucket Regional School District (Massachusetts) teachers prepare students for life beyond secondary school by teaching and assessing key Habits of Learning (HOL). The HOL include thinking and reflection, communication, collaboration, independence, and creative exploration. They are part of the Pentucket local assessment policy. In order to develop a common understanding of what teachers are expected to teach and students are expected to learn, Pentucket district leaders provide all teachers and students with detailed descriptions of the Habits of Learning. The district policy requires that HOL be taught explicitly and assessed throughout the school year from pre-kindergarten through high school. The HOL represent important local standards that are integral to graduation requirements and are meaningful indicators of student performance across grade and subject levels.

Pentucket Assistant Superintendent Dr. William Hart designed sessions in which teachers from the middle school came to the high school to share examples of HOL assessments they had developed. One participant noted, "This time [was] invaluable to share ideas, motivate teachers to improve their practice, and allow teachers time to continue to explore the use of performance assessments and how the HOL rubrics can work to improve our classroom instruction and outcomes." (*See Story from the Field on p.18)*

LEADERSHIP AND POLICY SUPPORT

Successful efforts to adopt quality performance assessments have been driven by a high level of support from teachers, parents, community members, and school and district officials. The more all stakeholders participate in building the foundation of the performance assessment system, the more school leaders will be able draw upon this base of support in the future. The need for such political will makes it especially important to field test, fine tune, and scale up the system slowly, particularly if there are high-stakes outcomes based on student performance.

THE QUALITY PERFORMANCE ASSESSMENT FRAMEWORK IN ACTION—THREE STORIES FROM THE FIELD

The following stories examine the work of a charter school, a Pilot school and a school district. Each story highlights a particular aspect of the QPA Framework and concludes with a description of actions taken and recommended next steps. Together, they illustrate multiple possible entry points for engaging in this work.

STORY 1

Quality Data Analysis: Cape Cod Lighthouse Charter School Assessment Validation Sessions

Cape Cod Lighthouse Charter School chose to focus on technical quality as an entry into performance assessment. The faculty wanted to ensure that the assessment tasks they developed were *valid*—producing intended information about student learning. The faculty explored the following key questions:

- Does the assessment provide the information about mastery of standards/content for which it was designed?
- Do student work samples demonstrate proficiency for the subject and grade level?
- Do teachers and other school faculty use data from performance assessments to inform curriculum planning, instruction, and (re)design of assessments?

An important step in determining validity is ensuring that learning assessments are clearly aligned to standards and that they measure student performance on the intended standards. In order to meet validity requirements, assessments must be appropriate for the standards being measured. For example, a multiple-choice test would not be a valid measure of a student's ability to write a cohesive, well-organized argument, nor would it measure his or her ability to express and defend ideas orally.

THE QPA FRAMEWORK

Quality Data Analysis

Quality assessment data analysis involves examining both student work and score data for *technical quality.* Assessments must be valid, reliable and provide sufficient evidence of learning. *Valid* means the assessment measures what it was intended to measure (both content and intended level of rigor). *Reliable* means a group of teachers (or scorers) agree on what a rating means and can score it the same way. Reliability is essential because assessment data leads to high and low stakes actions and decisions. To ensure that all students are demonstrating mastery sub-group performance should be examined for bias in score results. *Sufficient* evidence means students have been given a complete opportunity to demonstrate mastery resulting in enough evidence of learning being collected. Without technical quality there is no guarantee that an assessment system has evaluated student learning fairly and completely. Conclusions from the data analysis provide information to practitioners for planning future instruction and assessment.

Working with professional development support from CCE, Cape Cod Lighthouse Charter School (CCLCS) teachers used a structure for critical review to share and critique assessment tasks: the Assessment Validation Protocol.[6] Several teachers prepared and presented an assessment they wished to validate. The assessments ranged from an independent reading project to a foreign language assessment to a social studies museum artifact project. In preparation for the validation session, teachers gathered all documents related to their assessments, including prompts, standards maps, rubrics, and scaffolding materials to share with their colleagues. In addition, they selected samples of proficient student work that would serve as evidence of students' ability to demonstrate mastery of the selected standards on the assessment.

Steps in the Assessment Validation Protocol

1. QUALITY ALIGNED INSTRUCTION

The session begins with a cross-disciplinary group of four to six teachers—the validation team—reviewing all documents including an "Assessment Validation Cover Sheet" that lists the standards to be assessed. First, the team spends 10 minutes ensuring that the assessment is aligned to standards. To do this, the team carefully reviews the standards being assessed by the given task and compares them to the submitting teacher's expectations. In addition, the team ensures these standards assess students on the competency level of the standard referred to as "depth of knowledge"(Webb, 1997) levels. Assessments measure skills ranging from basic (e.g., recall and memorization) to complex (e.g., critiquing and presenting multiple viewpoints). To validate alignment, the validation team must indicate whether or not it believes each standard has been accurately assessed, discuss findings, and reach 80 percent consensus.

2. QUALITY TASK DESIGN

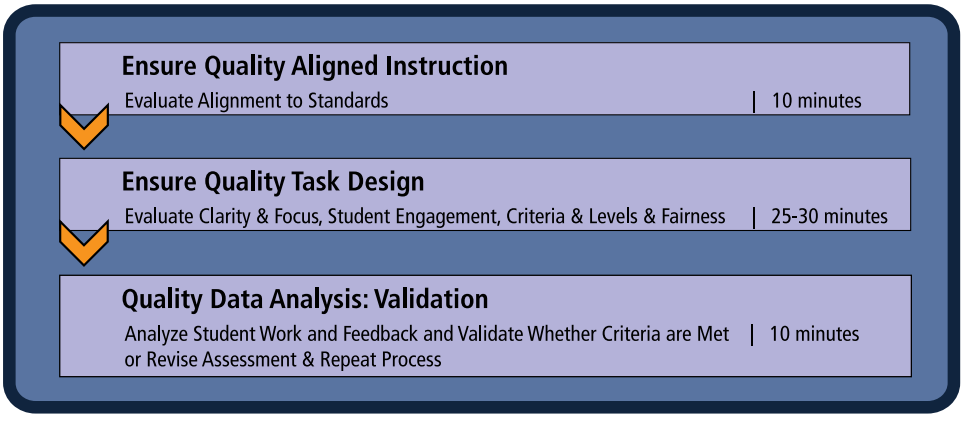
Next, the team spends 25-30 minutes evaluating the assessment's clarity and focus, the opportunities provided for student engagement, the appropriate use of rubrics or scoring guides, and the degree of fairness. The validation team looks for evidence the assessment is linked to instruction, requires students to actively engage in the task, is clear and easy to understand, and uses an appropriate rubric for scoring. To evaluate fairness, team members also determine whether the task is free from stereotypes, whether it is fair to students of all races, cultures, ethnicities, religions, etc., and whether it uses the principles of "universal design"(Rose and Gravel, 2010)—that is, whether the task uses language and a format that all students can understand. Again, in order to validate this aspect of the assessment, the team must indicate whether or not it has found evidence of each criterion, discuss its findings, and come to an 80 percent consensus.

3. QUALITY DATA ANALYSIS: VALIDATION

Finally, the validation team determines whether or not the criteria for validation have been met by analyzing the student work and all feedback from the alignment and design sections of the protocol. If the team is able to reach 80 percent consensus that there is evidence for each assessment criterion in the validation protocol, the task is validated. If the team fails to reach consensus, or if it determines that any criterion was not met, it provides feedback for revision. A member of the validation team meets with the submitting teacher, reviews the feedback, and makes a plan for resubmission if necessary. The process can be repeated until validation is achieved.

[6] The QPA assessment validation protocol is adapted from the work of Karin Hess (Hess, 2009).

Figure 2: QPA Assessment Validation Protocol



CRITERIA FOR A VALID ASSESSMENT

Assessment Is Aligned

- Assessment is aligned to specific content standards
- Assessment is at the appropriate depth of knowledge to assess the standard
- Assessment is aligned to what is intended to be assessed and will elicit what students know and can do related to chosen standards
- Assessment is scheduled to provide enough teaching time to allow students to succeed

Assessment Has Clarity and Focus

- Assessment addresses an essential issue, big idea, or key concept or skill of the unit/course
- Assessment is linked to ongoing instruction (within a unit of study/course)
- Clear directions indicate what the student is being asked to do
- Assessment includes what will be assessed individually by the student (even if it is a group task)

Assessment Allows for Student Engagement

- Assessment provides for ownership and decision-making and requires the student to be actively engaged
- Assessment provides authenticity and reflects a real world situation or application

Assessment Uses Appropriate Criteria and Levels

- Rubric(s) or scoring guide(s) assess all intended parts of content standards
- Exemplars/anchor papers illustrate expectations aligned to standards

Assessment Is Fair and Unbiased

- Material is familiar to students from different cultural, gender, linguistic, and other groups
- Task is free of stereotypes
- Students have equal access to all resources (e.g., Internet, calculators, spell-check, etc.)
- Assessment conditions are the same for all students
- Task can be reasonably completed under specified conditions
- Rubric or scoring guide is clear

Assessment Adheres to the Principles of Universal Design

- Instructions are free of wordiness or irrelevant information
- Instructions are free of unusual words students may not understand
- Format/layout conveys focus of expected tasks and products
- Format clearly indicates what actual questions or prompts are
- Questions are marked with graphic cues (bullets, numbers, etc.)
- Format is consistent

Assessment allows for Accommodations for Students with IEPs/504 Plans

The Validation Process

CCLCS started the validation process in January 2011. Teams met three times before the end of the school year and reviewed 12 assessments that included tasks in every subject and all three grade levels. These assessments were reviewed by interdisciplinary validation teams, but not a single one was validated on the first round.[7] Why was this lack of validated assessments considered a success? A lack of initial validation meant the process was successful in uncovering the assessment creators' blind spots and assumptions, so that the assessments could be refined for future use. For example, one question in the validation protocol asked if the scoring guide was clear. Of the 12 assessments presented at CCLCS, only three validation teams felt the rubric was clear on the first review. Presenting teachers could then take their colleagues' precise feedback focused on the clarity of the rubric/scoring guide and revise before giving it to students again. Once revisions were made, teachers could resubmit to the validation team. CCLCS resumed this process in the fall of 2011 to validate the first 12 assessments.

Feedback from the validation sessions included the following comments:

- **Fairness**—*Assessment is unfair because the lack of clarity and specifics in the project guidelines means that an "A" student will get it, but a struggling student will require more guidance to be successful.*
- **Clarity and Focus**—*More detail about the process and intent would be beneficial to students. How do students know what not to do to get a perfect score?*
- **Student Engagement**—*Structure a time and protocol for students to compare cars to see why one performed better than the other based on the laws of motion.*
- **Criteria and Levels**—*The rubric needs work. It needs to be easier to read. It is missing a few categories such as display and presentation, and quality of writing.*
- **Alignment**—*Not only ask, 'What changes did you make?' but ask, 'Why are you making them and how are they related to the laws of motion?' Each student learns about one system in depth, but the standard calls for them to master all the body systems. Can you create a test or way they learn from other students to ensure they understand all systems?*

One teacher commented that the process is helpful because it supports teachers in "getting at the essence of where problems lie in our assessments and tweaking them so the quality of the assessment is improved." CCLCS has created a community of practice where teachers collaborate and provide valuable feedback to each other to improve the validity of their assessments.

Lessons Learned—How the Cape Cod Lighthouse Charter School Assessment Validation Sessions Reflect Best Practice

Technical quality, one of the three Essentials for a performance assessment system, is at the heart of the validation sessions. Rather than relying on basic intuition or chance to ensure that tasks are valid, CCLCS teachers decided to systematically determine whether assessments met the validation criteria. By doing so, CCLCS is well on its way to making sure measures of student learning provide relevant, meaningful information about what students know and can do to students, parents, teachers, and local administrators. In addition, the process allows teachers to ensure tasks are aligned with standards and teaching and that they are fair.

Highly motivated Cape Cod Lighthouse Charter School teachers who support performance assessments have driven technical quality by engaging in validation sessions. By investing additional time and effort to develop assessment literacy, these teachers have created their own rewarding style of practice.

One validation session participant noted its potential to transform practice, stating, "Looking at assessments with a critical eye was extremely beneficial and will not only help me become a better teacher, but will also certainly enhance my students' learning and improve their depth of knowledge." This kind of feedback can have a positive impact on practice throughout the school. Teachers who support performance assessments may encourage their peers to follow suit. As teachers and leaders build fluency with performance assessments, they also build their school's or district's capacity to develop and implement professional development activities that facilitate this work.

[7] Throughout this paper, we refer to unpublished documentation and artifacts shared with QPA by the schools, including validation feedback, PD evaluations, teacher reflections, personal communications, and teacher and student work. Because they are unpublished, they do not appear in the References section. For further information about these types of documentation, please contact QPA directly.

Looking at assessments with a critical eye was extremely beneficial and will not only help me become a better teacher, but will also certainly enhance my students' learning and improve their depth of knowledge.

—CCLCS Teacher

The CCLCS Assessment Validation Sessions also reflect important aspects of the QPA Framework. This practice demonstrates how a school or district can

- **Analyze assessments for alignment to prioritized standards**—Aligning standards and assessments does more than just ensure the student work and data provided have a clear purpose and use. It also ensures that all students have had the opportunity to learn the standards that are measured. By validating their assessments, teachers at CCLCS are taking steps to provide a rigorous, equitable education to all students. This process also has the potential to improve practice as teachers become aware of whether or not they are in fact teaching what is being assessed and adjust instruction accordingly. Without this important collaborative critique process, assessments run the risk of being irrelevant to both students and teachers, because they may not provide appropriate information about what students know and can do.

- **Conduct meaningful cross-disciplinary conversations**—Another important aspect of the validation sessions is that they are cross-disciplinary. As groups of teachers work across subject areas, they have important conversations about expectations for performance across subject areas. This discussion provides an opportunity for teachers to not only align standards and assessments, but also to align their expectations. While traditional policies may leave students confused about what is being asked of them from one course to the next, teachers, working collaboratively demystifies expectations for students, allowing them to anticipate the level of work being demanded in all courses.

Possible Next Steps

As teachers and school leaders engage in this work, it is important to remember that it is an iterative process.[8] A possible next Step in the design and implementation of a local performance assessment system for CCLCS may be: Step 7: *Determine whether outcomes on teacher-created performance assessments, and the interpretations made about learning, are closely related to students' outcomes on other measures of the same standards.*

[8] To support schools in planning their next steps, QPA has developed the "Steps to Quality Performance Assessment" (Read all 10 Steps on page 26), aligned to the QPA Framework. Each story from the field concludes with an analysis of the Steps schools have taken from this list.

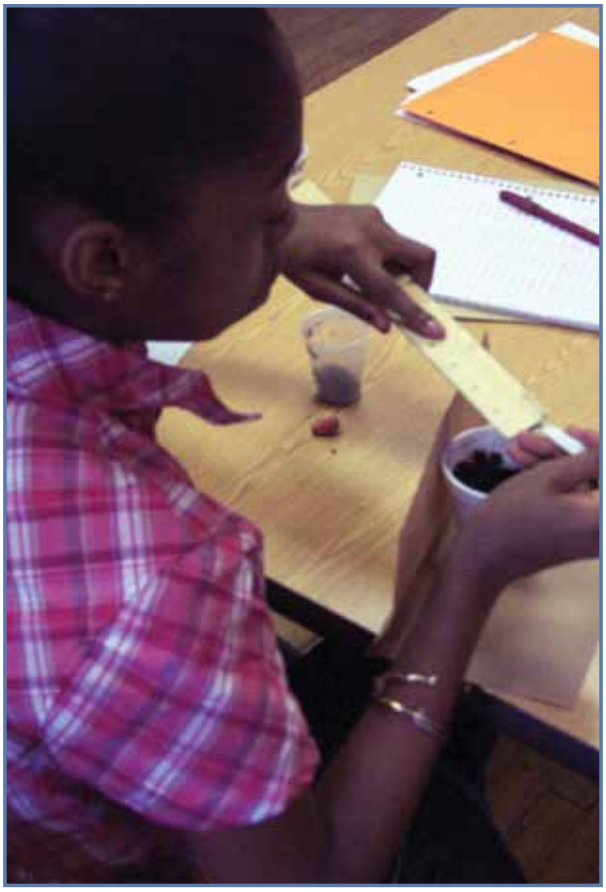
CCLCS's local assessment system includes a series of benchmark performance assessments students must pass in each grade level. Reviewing student scores on these benchmark assessments and comparing them to how students perform on other indicators—including grades, standardized tests, and diagnostic tests such as reading assessments—provide important information about students' learning needs and about the assessments themselves. Student scores on local performance assessments should be related to scores on other measures of the same standard. Perfect alignment of performance assessments and other evaluations of students' competencies should not be expected, as performance assessments tend to measure a higher level of cognitive complexity and to assess multiple standards simultaneously.

However, because student achievement cannot be understood by relying solely on standardized test information performance assessment data is essential for understanding student learning. Analyzing local and state assessment data creates a fuller picture of students and the work of the school.

In addition, QPA Step 8 suggests that schools and districts: *Collect evidence to document consistency in scoring and calculate a reliability score for each important assessment.*

Assessment data is useful if it is consistent and reliable. Scoring consistency implies that information gathered from one measure of student learning does not vary significantly from teacher to teacher, or in time. Scores generated by one teacher must be the same as those generated by another. Since some level of subjectivity is always involved in scoring with rubrics, a small amount of variation should be expected.

In order to achieve scoring consistency, time and resources must be invested in scoring sessions. Similar to the validation sessions, scoring sessions involve teachers working in groups to score student work, using rubrics, and coming to a consensus about scores. Extensive analysis and refinement of rubrics, ongoing scoring practice, and deep conversations about consistency can help teachers attain a high level of agreement about proficient work. While this work requires a significant investment of time, it is critical to ensuring that assessment data is meaningful and of high quality.



Student achievement cannot be understood by relying solely on standardized test information. Performance assessment data is essential for understanding student learning.

STORY 2

Quality Task Design: Fenway High School Junior Review, Senior Institute, and Senior Position Paper

Fenway High School in Boston, Massachusetts, engaged in the performance assessment design process. Teachers and school leaders wanted to ensure that students demonstrated mastery of college and career ready skills through a series of benchmark assessments completed in their junior and senior years. This Fenway High School (FHS) story explores the following questions:

- What are the criteria being used to assess mastery?
- Are there samples of student work to illustrate work at each performance level?
- Do students at all levels have sufficient opportunity to demonstrate mastery through the assessment?
- Is the assessment appropriate in content and skill level for the grade being assessed?

Performance Assessment for Authentic Learning

Effective assessment development begins with clarity about what students at each grade level should know and be able to do. A common understanding among faculty about content and cognitive complexity in the grades they teach and adjacent grades guides the design of prompts and scoring tools. Documentation of the assessment design and a validation process build awareness of expectations, allowing appropriate performance levels to be set at each grade level.

At FHS, assessments are used to measure authentic learning in ways that give all students the opportunity to demonstrate mastery of key standards as they progress through the grade levels. FHS's assessment policy has resulted in a series of aligned benchmark assessments that are part of the Junior Review and Senior Institute. Underlying this policy is the belief that measures of learning should "be used for the benefit of the child, be intellectually and culturally fair to all students, support individual development not competition for grades, [and] reflect the use good Habits of Mind."[9] As part of this policy, "Fenway actively explores better ways to determine when…students are prepared to do the kinds of work and study required in the real world," including through "classroom-based diagnostics, portfolios, project and assignment outcomes, exhibitions, and tests."

[9] Habits of Mind are attributes or behaviors that students display when they are using their minds effectively and efficiently (Costa, 2008).

THE QPA FRAMEWORK

Quality Task Design

Effective assessment development begins with clarity about what students at each grade level should know and be able to do. A common understanding among faculty about content and cognitive complexity in the grades they teach and adjacent grades guides the design of prompts and scoring tools. Documentation of the assessment design and a validation process build awareness of expectations, allowing appropriate performance levels to be set at each grade level.

Fenway actively explores better ways to determine whether our students are prepared to do the kinds of work and study required in the real world

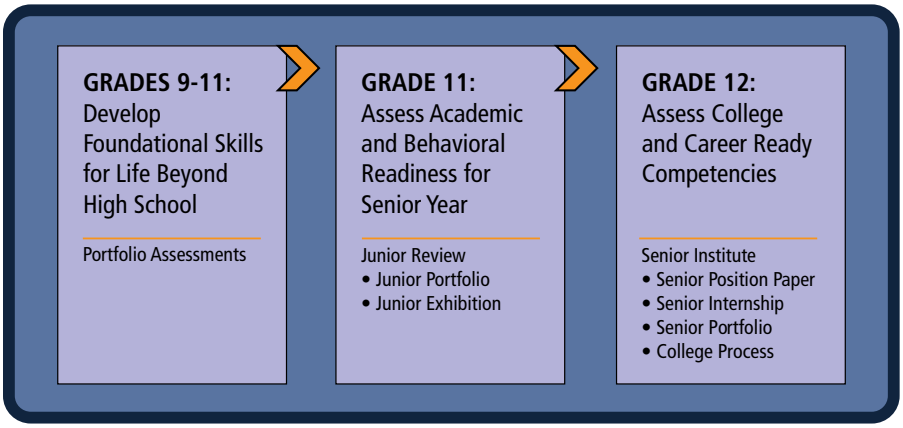
—Fenway Handbook

WHAT IT TAKES TO BE A FENWAY GRADUATE

- **Senior Internship: All Fenway seniors are required to fulfill a full-time six-week pre-professional internship during the last term of Senior Institute. The internship deepens the student's understanding of a field of work and the role education can play in preparing the student for success. A portfolio that documents the experience, including a research component, is part of the requirement.**
- **Standardized tests: A variety of standardized tests are offered to students in their senior year. Some are required and others are optional.**
- **Planning for the Future: More than 90 percent of Fenway's students go on to college. An important part of senior year is spent thoroughly researching post high school options and keeping track of college application deadlines.**
- **Course work in math, science, and humanities: Courses can be either at the high school or college level. Additional courses may also be included.**
- **Senior Portfolios in the major subject areas: math, science, and humanities**
- **Senior Position Paper**
- **Science Fair**

—Fenway High School Student Handbook

Figure 3: Fenway High School Benchmark Assessments



All eleventh graders at FHS are required to complete the Junior Review, an exhibition of learning captured through portfolios. According to the Fenway High School Handbook, "Portfolios are purposeful collections of student work that show understanding of different and important topics and skills." Juniors at FHS choose a series of assessments that demonstrate their mastery of benchmark standards to include in their portfolios to prove they are prepared for senior year. During the Junior Review, students present a range of academic content to "prove their ability in the major content areas, as well as demonstrate intellectual and social readiness for the challenging senior year." This presentation represents vertical alignment, as it serves both as an eleventh grade exit assessment and as a foundation for students' senior year graduation requirements.

Students who successfully demonstrate readiness for senior year through their Junior Review are inducted into the Senior Institute. The Fenway High School Handbook notes, "The Senior Institute captures and crystallizes the skills and intellectual maturity learned during the previous three years at Fenway." During Senior Institute, students are again assessed on both academic and non-academic criteria to determine their readiness for the next step—college and careers. The Institute culminates in a series of assessments through which students have the opportunity to demonstrate their competency in key graduation requirements. Beyond traditional measures such as standardized tests, students show that they are able to meet more authentic demands through a range of performance assessments which include presenting a portfolio of work, completing a six-week internship, completing the college application process, and completing the Senior Position Paper.

While students at FHS have noted that meeting senior year requirements can be challenging, one FHS graduate notes, "Here at Fenway there is a lot you have to do to get out of high school. At least you know that if you are graduating from this school that you are not getting off easy. You have proven you have met the tough requirements" (Stefanakis, 1997).

FHS's thoughtfully developed local performance assessment system helps support student learning. Beginning freshman year, teachers and staff at FHS carefully scaffold the knowledge and skills students must master by building authentic assessments into their curricula. By the time students reach senior year, they have worked on their ability to think critically and reflectively about their learning for three years. Further, as the Fenway Handbook notes, "Students edit and improve [assessment] pieces and save them in portfolios where they are available as evidence and for reflection and use in Junior Review or for Senior Institute Portfolios." By senior year, students have thus had ample opportunity to not only show what they know and can do, but to reflect on their own learning in order to improve.

Quality Task Design in the Senior Position Paper

Seniors at FHS are expected to write and present a Position Paper that demonstrates their ability to think deeply about a subject and to write meaningfully. The Senior Position Paper is aligned to the Common Core State Standards (CCSS) for English Language Arts as well as the Fenway Habits of Mind—perspective, evidence, connection, relevance and supposition. More specifically, "the goal of the paper is to focus on developing the skills of strong writing, critical thinking, and presenting an argument that are necessary for success in college." It calls for careful thought and effort, as students are assessed both on the quality of their ideas and the quality of their writing. In order to graduate, seniors must present and defend an idea, write persuasively, use appropriate voice, conduct relevant research, use appropriate citations, and revise and edit their work.

A CLOSER LOOK AT THE FENWAY HIGH SCHOOL SENIOR POSITION PAPER

Write a final Senior Position Paper related to a person or event. A senior must independently write, revise, and edit a paper arguing a position that is related to his/her person or event. A senior must be able to use his/her own voice to persuasively argue that position. The paper must show that a senior can: identify a key issue and a personal position, gather information from at least three sources, logically argue for the position, use supporting evidence from three sources, and acknowledge opposing perspectives. A senior's Position Paper must have appropriate format, clear structure, paragraph unity, and coherence; and correct conventions for citations and bibliography, and for spelling, grammar, and mechanics. As in other writing pieces, a senior must show evidence of having followed a writing process and of revising and editing independently. All note cards, outlines, and drafts must be filed with the final Position Paper.

— *Fenway High School Senior Portfolio Guidelines*

Teachers have developed a common project sheet and rubrics for the Senior Position Paper that shape teacher practice and student expectations by fostering common understandings. Grade-level expectations are solidified through the creation of anchor papers. As part of a local assessment portfolio, teachers at FHS documented evidence of the performance level for Senior Position Papers for each level of the rubric. These anchor papers serve as models for students, so that they have a clear understanding of their target and can demonstrate mastery and meet the graduation benchmark.

The Senior Position Paper proficiency requirement means that students revise their Senior Position Paper until it reflects a standard of quality that merits graduation. FHS teachers frequently review the standard to ensure that it is set appropriately and aligned to the level required for college readiness. In 2010, as teachers worked together in a community of practice to review anchor papers and submit documentation for FHS's Local Assessment System Portfolio, FHS teachers decided to increase the level of proficiency required on the Senior Position Paper. While the foundation for this expectation has been set, teachers at FHS will also need to align their instruction to achieve the new standard for this assessment and to "vertically align the quality of the Senior Position Papers…to ensure that the quality of the work is at the level required for college success." Teachers can achieve this level of Quality Task Design only when they set consistent expectations collaboratively.

Lessons Learned—How the Fenway High School Benchmark Assessment Process Reflects Best Practice

The Junior Review and Senior Institute are the result of many years of the school leaders' clear vision and support for developing quality performance assessment tasks that measure authentic student learning at the appropriate grade level. As a member of the Coalition of Essential Schools and the Boston Pilot Schools—two networks that promote progressive practices to benefit all students—FHS has had ample political support to develop this policy.

Larry Myatt, founder and former co-director of Fenway High School, describes this vision:

We all dreamed that if we put in place the right people with the right ideas during Senior year, we could stop them [students] from scraping by with a D minus. So our goal was to link work from internships, from a senior project, and from courses. Senior Institute was a way to customize these experiences and offer enrichment, remediation or acceleration. The notion was

to develop students' capacity for independent work, for making connections (Stefanakis, 1997).

This story of the development of the FHS assessment policy addresses the QPA Framework element of Leadership and Policy Support and Step 9 which suggests: *Document and adopt the assessment policy through a process that builds political will and support of all stakeholders.*[10] Since an authentic performance assessment system requires significant time and effort on the part of students, teachers, and school leaders, buy-in from all parties is crucial.

Students and their parents must value creating portfolios, conducting presentations of learning, and revising student work multiple times. FHS demonstrates that this work can be explicitly linked to college or career ready outcomes, so that it is clearly viewed as a worthy investment of students' time and energy as well as of parents' support.

The FHS story also addresses the QPA Framework element of Teacher Learning in Communities of Practice and Step 10 which suggests: *Design professional development in communities of practice that supports all teachers in effectively implementing the policy.* Teachers must view these assessments as meaningful learning opportunities from which they can gather relevant information about what students know and can do. Such a system demands more of teachers, as they will spend more time and thought developing assessments and providing ongoing feedback to students. Therefore, time and resources for professional development for this work are imperative. School and district leaders must spearhead this work, providing the vision and support as teachers continue along a challenging but worthwhile assessment path.

Beyond these policy lessons, the FHS assessments are models of important aspects of the QPA Framework element Quality Task Design. Specifically, they demonstrate the Step 3: *Ensure that each assessment's content and complexity are appropriate for the assessment grade level, based on the school's established content sequence and grade-level standards.* Vertical alignment, the process of creating a cohesive scope and sequence of standards across grade levels, has been an important driver of the development of the Junior Review and Senior Institute. This process ensures that by junior year, students have been prepared, through relevant curricula and meaningful measures of learning, to meet the demands of senior year. Since FHS seeks to foster high-level competencies and the practical skills needed to navigate and succeed in the postsecondary world, these competencies have been built into the academic scope and sequence. Beginning in ninth grade, FHS students are taught to think critically and reflectively about their learning, make informed decisions

[10] For full list of QPA Steps to Quality Performance Assessment see page 26.

Here at Fenway there is a lot you have to do to get out of high school. At least you know that if you are graduating from this school that you are not getting off easy. You have proved you have met the tough requirements.

—Fenway High School Student

about their academic progress, self-assess their mastery of important standards, write authentically and for meaning, revise their work, and communicate effectively about their learning to diverse audiences.

In addition to scaffolding the content and skills needed to be successful beyond high school, FHS' assessment policy creates clear benchmarks that distinguish the cognitive complexity required from one year to the next. While Junior Review requires students to present portfolios and to reflect on their academic learning and non-academic habits, the Senior Institute requires a different set of skills. As seniors leave high school and enter college or the workforce, they must be prepared to meet the demands of these environments. Senior Institute prepares them by including an internship component as well as by requiring them to conduct relevant research on the college application process. These tasks serve as assessments of skill sets that extend beyond basic junior-year requirements and exemplify the sort of cognitive demands students will encounter beyond high school. FHS's local assessment system reflects the standard of readiness for college and career that the Common Core State Standards demand of all schools.

FHS's policy also addresses Step 5 in the QPA Framework: *Provide a sample of student work at each performance level that illustrates work at that level for each assessment.* Anchor papers help ensure that both teachers and students have a clear understanding of performance standards. FHS teachers identify anchor papers at each performance level that model expectations for Senior Position Papers. These anchor papers, along with rubrics, are provided to students as they complete their own Position Papers in order to facilitate their progress towards this important benchmark. Such a practice is integral to a high quality task design, because students have more opportunities to attain their goals when they know what the end product should look like. Showing students models of strong work can also encourage them and their teachers to push themselves to reach the highest possible standard rather than settle for basic competency.

Fenway High School is well along in the process of ensuring high quality task designs within its local assessment system. Assessments are vertically aligned and measure standards that are clearly outlined, well documented at each grade, and linked to important, authentic outcomes. Differentiated models of student work serve as concrete guides for teachers and students as they strive for mastery.

STORY 3

Quality Aligned Instruction: Pentucket Regional School District Habits of Learning

The Pentucket Regional School District (PRSD) in Massachusetts designed an assessment policy that aligned instruction around Habits of Learning (HOL). The district leaders wanted to ensure that instruction and assessment were aligned to the skills students would need for success in college and career. The PRSD story explores the following questions:

- What does quality teaching look like within the context of a local performance system?
- How are local performance assessments aligned to national, state, district, and school standards; and how are these standards used to inform instruction?
- What scaffolding and support strategies can be used at the classroom level in order to support student mastery of standards?
- How do leaders design and implement policies and professional development to support performance assessment?

Teaching and Assessing Habits of Learning

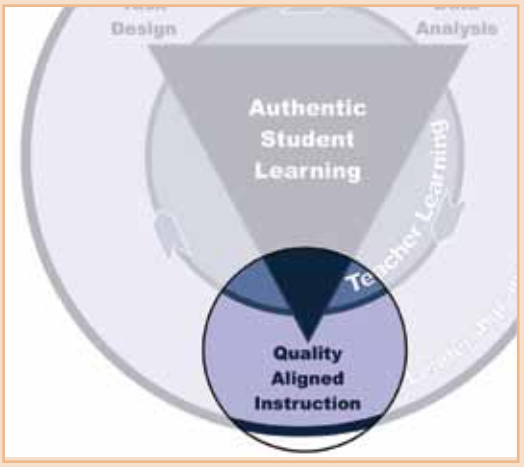
All students need instruction based on college and career readiness standards. Once students have the opportunity to master these standards, assessments allow them to demonstrate what they know and are able to do. Further, information about how students approach learning can be as valuable to teachers as information about the actual content and skills they learn. College and career ready students employ a number of learning strategies to get results.

In PRSD, teachers prepare students for life beyond secondary school by teaching and assessing key Habits of Learning. The five HOL are thinking, communication, collaboration, independence, and creative exploration. They are an integral part of PRSD's local assessment policy. The district has determined that these skills represent "essential learnings" which are the critical skills, knowledge, and dispositions that are prioritized as being essential for every student to master (Dufour, Dufour, Eaker & Many, 2006). PRSD provides all teachers and students with detailed descriptions of the HOL in order to develop a common understanding of what they are expected to teach and learn. The district policy requires that HOL be taught explicitly and assessed throughout the

THE QPA FRAMEWORK

Quality Aligned Instruction

Teaching and assessment practices are interwoven. Instruction and performance assessments are aligned and based on essential learnings and appropriate national, state, district, and school standards. In addition, all students need instruction based on college and career ready standards. Once students have the opportunity to master these standards, assessments allow them to demonstrate what they know and are able to do.



school year from pre-kindergarten through high school. The HOL are powerful because they are integrated with content, not taught in isolation, resulting in deeper understanding and transfer to other contexts.

PRSD leaders documented the HOL policy in the student handbook. The policy states that students will be regularly assessed on the HOL using the PRSD HOL rubrics. District-wide performance assessments of the HOL in grades four, six, eight, and eleven took place for the first time in the 2010-2011 school year. Students were prompted to reflect upon how they used HOL in their courses throughout the school year and to prepare portfolios of work samples that demonstrated how they had used the HOL. Student presentations varied by grade level according to length, audience size, and preparation. For example, at the beginning of the semester, eleventh graders at Pentucket Regional High School were grouped into small cohorts that met monthly to self-assess their progress on HOL. Each cohort was assigned two faculty advisors to guide them through the work of preparing presentations.

In advance of the presentations, teachers and district leaders worked to develop common rubrics to assess students' demonstrations of HOL. These rubrics were made available to teachers and students before the district-wide presentations were required. Teachers worked to ensure that all students had clear understandings of the requirements and were given the opportunity to learn the standards before being assessed. At the end of the semester, juniors presented their portfolios to a panel of parents, teachers, administrators, and community members. These 20-minute capstone presentations have become part of PRSD's graduation requirements.

To support this work, administrators at the high school designated early release days for professional development to support the implementation of the HOL performance assessment system. For example, during one session middle school teachers went to the high school to share examples of the HOL assessments they had developed. "This time [was] invaluable to share ideas, motivate teachers to improve their practice, and allow teachers time to continue to explore the use of performance assessments and how the HOL rubrics can work to improve our classroom instruction and outcomes."

REFLECTION ON THE "HABIT OF THINKING"

It's one of those habits that is misunderstood because people think, okay, well I think every day. But it's a type of thinking that most people don't do every day—a reflective kind of thinking. So for the history book review the first section was to give what you thought of the book. I had to think back to my overall feelings when I read the book, not just say, 'Oh that was a good book.' Why did I think it was a good book? What parts of it made it a good book?

The next part of the book review was to say what you thought the author's purpose in writing the book was. And that to me was the biggest challenge—to think about what they were thinking when they wrote the book. I was really pleased with what I did because I realized that there is a whole different part of thinking—deep thinking.

—Pentucket High School Student

Towards a Cycle of Assessment and Instruction

As a long term goal, the district aims to have all teachers embed the HOL in instruction and use formative assessments to inform practice. One teacher remarked that using the Habits of Learning during instruction helped students improve their performance, thus demonstrating the power of performance assessment to function as assessment for learning.

Once students were introduced to the project, they were asked to consider how they could improve their creative exploration habits through the…assignment. Midway through, they again used the rubric to reflect on their progress. Finally, at the end, as part of their reflection, they evaluated themselves according to the rubric. The teachers were pleased with the result as it was clear that the rubrics were helpful in directing students to push their thinking.

—PRHS teacher

In his HOL presentation, a junior at the high school also revealed how the HOL of Communication can be embedded in instruction, further exemplifying the district's goal.

I think there's a big misconception with this habit. A lot of people when they think of communication they think of speaking and presenting, but communication is bigger than that. It's listening, it's observing and it's becoming better through observing other people present. It means successfully listening, speaking, observing, presenting, expressing, and delivering.

[In history class] We had seven groups to observe and to watch before us. By taking notes and carefully observing, we got to see what worked for them, what didn't work for them. Ultimately, when we sat down, we said, well this group, they did a lot of slideshow and a lot of fact-based information and that didn't engage the audience at all. And we wanted to do more than portray the facts of what our project was trying to tell them. We wanted to engage the audience. We made a slide show and we posed questions to the audience throughout the entire slide show.

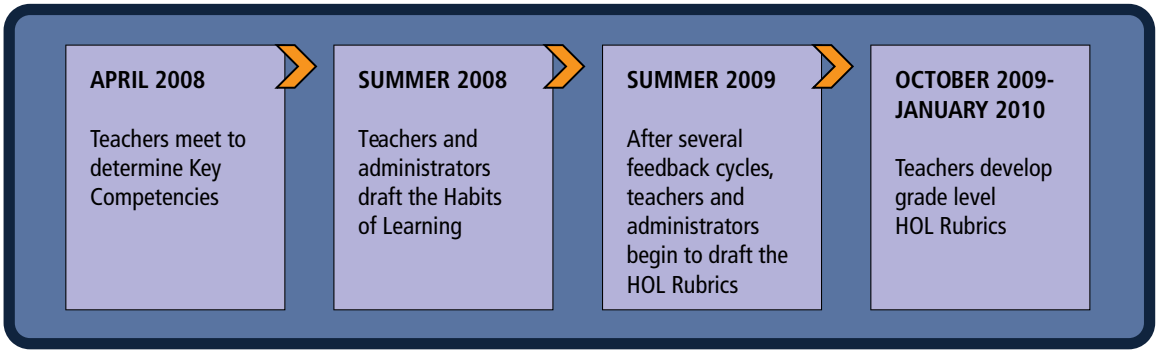
—PRHS Junior

Similar to the teacher reflection on the process of helping students develop creative exploration abilities, the student example demonstrates teachers ensuring that assessments are interwoven with teaching—that is, instruction is aligned to standards and provides all students the opportunity to master these standards. Teachers who embed assessments in instruction make sure they provide multiple opportunities for learners to engage with the standards prior to being assessed; students use rubrics to reflect on their progress and observe and critique their peers' work. District leaders at PRSD wish to foster this sort of teaching across subject areas, and grade levels.

Taking a Systemic Approach

Developing the HOL assessment system was a detailed process that evolved over time and continues to progress. PRSD assistant superintendent and architect of the HOL system, Dr. William Hart, notes that the development of the HOL rubrics and performance criteria reflects "months of exceptional work from teachers representing every school and every grade in the district," and has been a "deliberate, thoughtful, and inclusive process." First, teachers met in April 2008 to determine the key competencies students need to master in order to succeed in college. Next, teachers and administrators devoted several days over the summer to draft the HOL. After teachers in each school provided feedback on this draft, district administrators revised the HOL. In the summer of 2009, more than one year after the initial meeting, teachers and administrators at the Teacher Leader Summer Institute developed an HOL rubric. PRSD teachers then began the three-month process of creating grade-level HOL rubrics.

Figure 4: PRSD HOL Timeline



This process required not only time, but also a high level of community buy-in and committed leadership. At the district level, Dr. Hart and the District Professional Development Leadership Council supported this work. In order to fulfill the vision of creating "passionate learners prepared for an ever changing world," the school district has made its mission to "regularly collaborate to balance content knowledge with HOL in a powerful learning environment…[and to] measure progress by locally created benchmark assessments and standardized tests" (Pentucket Regional School District, 2010). At the school level, PRSD principals have provided teachers with the time and resources needed for professional development in assessment literacy. According to Dr. Hart, this support includes an HOL Demonstration of Mastery Task Force to guide the process at each school. There is also support for students at each building level to guide them through their presentation and portfolio process.

Parents have been crucial to the success of the HOL vision. Parents attend the HOL presentations allowing them to witness the power of the process by being part of it. The following excerpts from an article in the Newburyport News, PRSD's local newspaper, demonstrates this: "Karyn Williams (PRSD student) said the hardest part of the portfolio assessment was speaking in front of people for that length of time. 'Afterwards my mom kept saying how proud she was of me,' said Williams. Shannon Beaton (PRSD student) said the experience tapped strengths that aren't always recognized through traditional assessment methods (Solis, 2011)." When parents become engaged in the process, they become advocates for performance assessment.

Lessons Learned—How the Pentucket Regional School District's Habits of Learning Reflect Best Practice

Although PRSD's work has come a long way, it is not complete. Dr. Hart concludes, "It will take several years to fine-tune our curriculum, instruction, assessment, and public demonstration procedures before we are at a point where we may be satisfied."

In addition to highlighting important policy lessons—namely the importance of time, political buy-in, and professional development for local performance assessments—this story of the PRSD HOL addresses the QPA Framework element of Quality Aligned Instruction and Step 1 which suggests: *Determine graduation and promotion requirements, essential learnings, and/or habits of mind and work that focus the school on the most important standards for their students.*[11]

The amount of time, thought, and effort the district has put into developing the HOL rubrics and assessments are a testament to the importance the district and schools assign to these essential learnings. The assessments provide meaningful, relevant information to students and parents, teachers, school leaders, and district policymakers—information that may indicate whether or not students are prepared to meet college-level expectations.

As one PRSD teacher noted, "The HOL performance assessment has the potential to be an example of how public schools can systematically assess students' learning." PRSD's use of the HOL demonstrates quality aligned instruction in several ways. First, the HOL represent important local standards integral to graduation requirements. They are meaningful indicators of student performance that can be used across grades and subjects as part of a uniform assessment policy.

Second, the HOL are aligned to instruction and help drive teaching and learning. Integrated with content, HOL are not taught in isolation. Rather, they are used as a means of ensuring deeper learning and transfer of knowledge. Use of HOL assessments exemplifies how standards should be measured using end-of-year assessments, as well as formatively assessed through self-scoring and reflection.

[11] For full list of QPA Steps to Quality Performance Assessment see page 26.

Finally, PRSD has demonstrated the QPA Framework element of Leadership and Policy Support and Step 9 which suggests: *Document and adopt the local assessment policy through a process that builds political will and support of all stakeholders.* The Habits of Learning and performance assessments are a well-documented, integral part of the PRSD local assessment policy. District administrators have been intentional in their documentation of the HOL assessments, and have published relevant policies in the district handbook and on the district website. A commitment to parent communication enables parents to be informed participants in HOL presentations.

The project (HOL presentation) allowed him to articulate what was meaningful to him as a learner. It was one of those light bulb moments we parents love—when your child figures out that he is responsible for his own education—and he is actually excited by that idea.

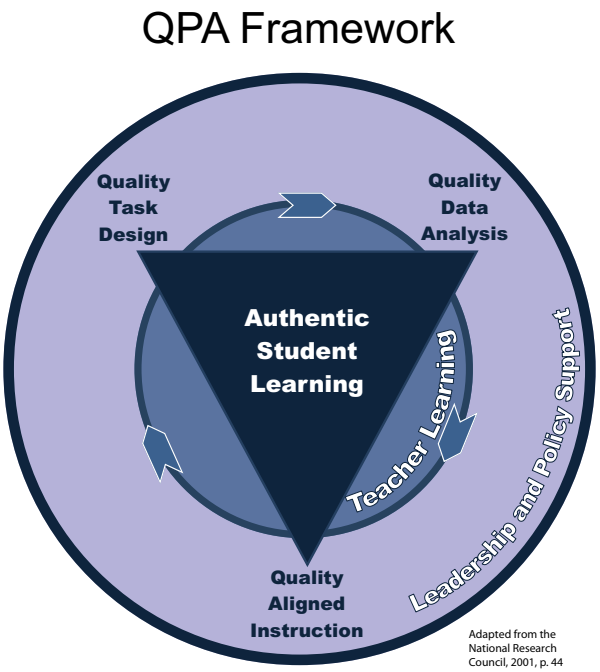
—PRHS Parent letter to the PRSD School Committee

We will regularly collaborate to balance content knowledge with Habits of Learning in a powerful learning environment. We will measure progress by locally created benchmark assessments and standardized tests

— PRSD Mission

CONCLUSIONS: KEY THEMES AND LESSONS IN STORIES FROM THE FIELD

These three stories highlight different paths in developing high quality local assessment systems that incorporate performance assessments. While each story is characterized by distinct vision, actions, and outcomes, they share a common feature—each models how the QPA Essentials and the QPA Framework work together to improve student learning and teacher performance. School and district leaders seeking to create local assessment policies or to refine an existing policy can use these tools to guide decisions that reflect a high degree of assessment literacy. The following section briefly summarizes key policy lessons, which reiterate the QPA Essentials for performance assessment systems.



Adapted from the National Research Council, 2001, p. 44

TECHNICAL QUALITY

Validity means an assessment measures what it was intended to measure. In the case of the Pentucket Regional School District, a high quality task design means assessments are aligned to essential local standards and are vertically aligned to help students master critical benchmarks. Beginning in elementary school, the Pentucket Regional School District's Habits of Learning enable teachers to create tasks that measure skills students need to succeed in college and the workforce, including the abilities to communicate effectively and think critically. Data from these assessments are used to drive instruction to ensure that all students have an opportunity to meet these standards and learn the skills they will need to be prepared for future endeavors.

Reliability means a group of teachers can agree on what a rating means and score it the same way. To ensure the integrity of the performance assessment process, schools and districts must take measures to ensure data is reliable and consistent. At Fenway High School, performance assessments measure students' ability to perform authentic tasks, including college-level writing in a Position Paper. The teachers at Fenway High School achieve reliability in the scoring of Position Papers through the use of common rubrics, anchor papers, and professional development time to analyze and score student work. A local system that is high in technical quality must provide training for teachers to develop consistent expectations and reliable scoring practices that do not vary significantly over time or across teachers, grade levels, or subject areas.

PROFESSIONAL COMMUNITIES OF PRACTICE

All three stories emphasize the need for school and district leaders to provide time and resources for professional development that builds teachers' assessment literacy and skills. Teachers also need time to collaborate to ensure the quality and integrity of assessments. Student achievement will increase if schools and districts build an assessment-literate corps of teachers who are willing and able to transfer their learning to their colleagues in professional learning communities. At all three sites, teachers have led professional development sessions for colleagues in which they have presented assessment work and shared best practices. Similar models can be developed in schools and districts seeking to build internal capacity for assessment literacy.

School and district leaders have cultivated a high level of teacher participation and engagement by providing professional development time that is sustained over months, sometimes years. In the Pentucket Regional School District, for example, teachers and administrators spent 18 months developing the HOL rubrics before using them for instructional and assessment purposes. At Fenway High School, the Junior Review, Senior Institute, and Senior Position Paper have been refined in a community of practice for over 15 years. Time for Fenway High School's benchmark assessments is built into the professional development and student academic calendars to sustain continued improvement and effectiveness.

LEADERSHIP AND POLICY SUPPORT

The critical role of strong leadership and community support in performance assessment has been underscored in the work at all three schools. A clear vision for performance assessment was part of school and district policies. This vision has been at the heart of the design and implementation of the local assessment systems. The field stories demonstrate the various forms the investments of stakeholders and leaders may take—from political support built into the design of the school itself, to ongoing support from district and school leaders who provide ample time for professional development, to core groups of teachers who have a clear vision for and commitment to what powerful assessment can look like.

Pentucket Regional School District's and Fenway High School's experiences also reveal two important groups that can lend support to a local performance assessment system—students and their parents. When measures of learning are linked to important outcomes, students and parents can become advocates for the system because it measures competency and knowledge that is crucial beyond high school. Therefore, an important way to build local support for assessment policy is to link the assessments to meaningful, relevant measures beyond the classroom. Fenway High School's Senior Institute holds students to higher authentic standards of learning. The high level of buy-in, reflected by Fenway High School graduates who feel they have been adequately prepared for life beyond high school, is a testament to the importance of this work.

Key Lessons in Moving Forward with Quality Performance Assessment

In the 21st century, students will not be evaluated on their ability to complete multiple choice exams or memorize facts. Rather, they will be evaluated on their ability to think critically and creatively, communicate clearly, conduct authentic research using new media, and write persuasively and passionately. These skills call for the next generation of assessment—high quality performance assessments that measure how well a student transfers knowledge and applies complex skills. The need for these skills has been recognized at all levels, but it has yet to be realized. The untapped potential of performance assessments lies in the ability to demonstrate a higher level of competency and authentic learning. This potential will be realized when schools and districts strategically incorporate the QPA Essentials and focus on the technical quality attributes outlined in the QPA Framework.

As a country, we need to shift away from an education system in which students graduate based on "seat time" and course completion towards one based on graduation through demonstrating mastery and building content expertise in each discipline. If teachers collectively learn to design and implement performance assessments with technical quality, the policy door will be opened to teacher-designed performance assessments that count. Practitioner-developed assessment systems are the most effective way to ensure that students learn the skills outlined by the Common Core State Standards through curriculum alignment, authentic student learning, and meaningful assessments.

Some districts may be tempted to utilize commercially-developed performance assessments, thereby cutting short the time and resources needed for professional development. This decision would be a profound mistake. Teachers should participate in designing and using high quality performance assessments from the beginning. They should be given support and professional training to develop the assessment literacy needed to conduct assessments with technical quality. Without such central teacher involvement and professionalism, it is unlikely the next generation of assessments will promote the desired levels of student achievement and authentic student learning.

Schools and districts should appreciate both the short and long term benefits of a local performance assessment system. In the short run, a performance assessment system can provide better information about what students know and can do, provide timely data to shape instruction, increase student and teacher engagement, and help transition to the Common Core State Standards and the assessment system of tomorrow. In the long run, performance assessments can better prepare students for success as lifelong learners by shifting the focus to critical thinking, problem solving, and communication skills that will serve them well in college and throughout careers and civic life.

We hope to contribute to a conversation that leads to increased use of performance assessments and increased ownership of assessment practice at the local level, with the goal that students learn what matters most.

In the 21st century, students will not be evaluated on their ability to complete multiple choice exams or memorize facts. Rather, they will be evaluated on their ability to think critically and creatively, communicate clearly, conduct authentic research using new media, and write persuasively and passionately. These skills call for the next generation of assessment—high quality performance assessments that measure how well a student transfers knowledge and applies complex skills.

Steps to Quality Performance Assessment

The purpose of the Steps to Quality Performance Assessment (QPA) is to illustrate the QPA Framework and provide guidance to teachers and administrators on the many possible entry points for engaging in this work.

1. Determine graduation and promotion requirements, essential learnings, and/or habits of mind and work that focus the school on the most important standards for students. Analyze course syllabi and assessments for alignment to prioritized standards.

2. Determine whether all students have learning opportunities and access to a rich and rigorous curriculum by aligning school structures and curriculum.

3. Ensure that the content and complexity of each assessment is appropriate for the assessment grade-level, based on the school's established content sequence and grade level standards.

4. Engage teachers in the design of performance tasks using clear criteria, agreed upon expectations, and processes that measure complex skills in multiple modalities. The tasks should be transferable to new situations and meaningful to students. These tasks should focus on authentic (real world) learning whenever possible; they should engage students, and provide opportunities for ownership and decision making in real world situations.

5. Provide a sample of student work at each performance level illustrating work at that level for each assessment.

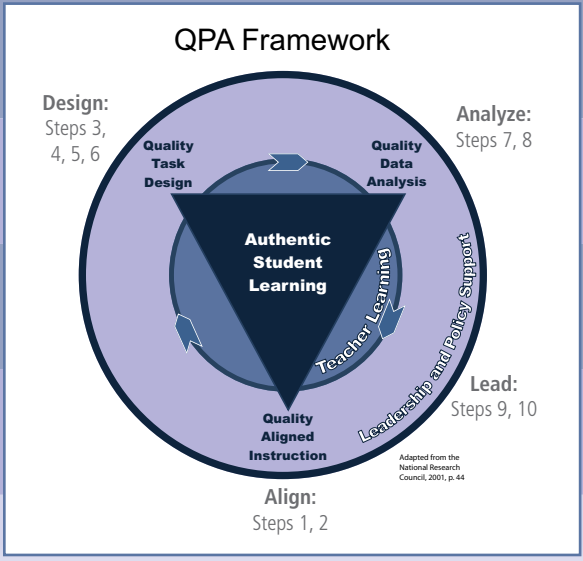
6. Evaluate the use of universal design principles for each assessment (e.g., language clarity, use of white space and graphics) to ensure that all assessments are usable and effective, and that students have full access to the assessment.

7. Determine whether outcomes on assessments and the interpretations made about learning are closely related to student outcomes on other measures of the same standards.

8. Collect evidence to document consistency in scoring and calculate a reliability score for each assessment.

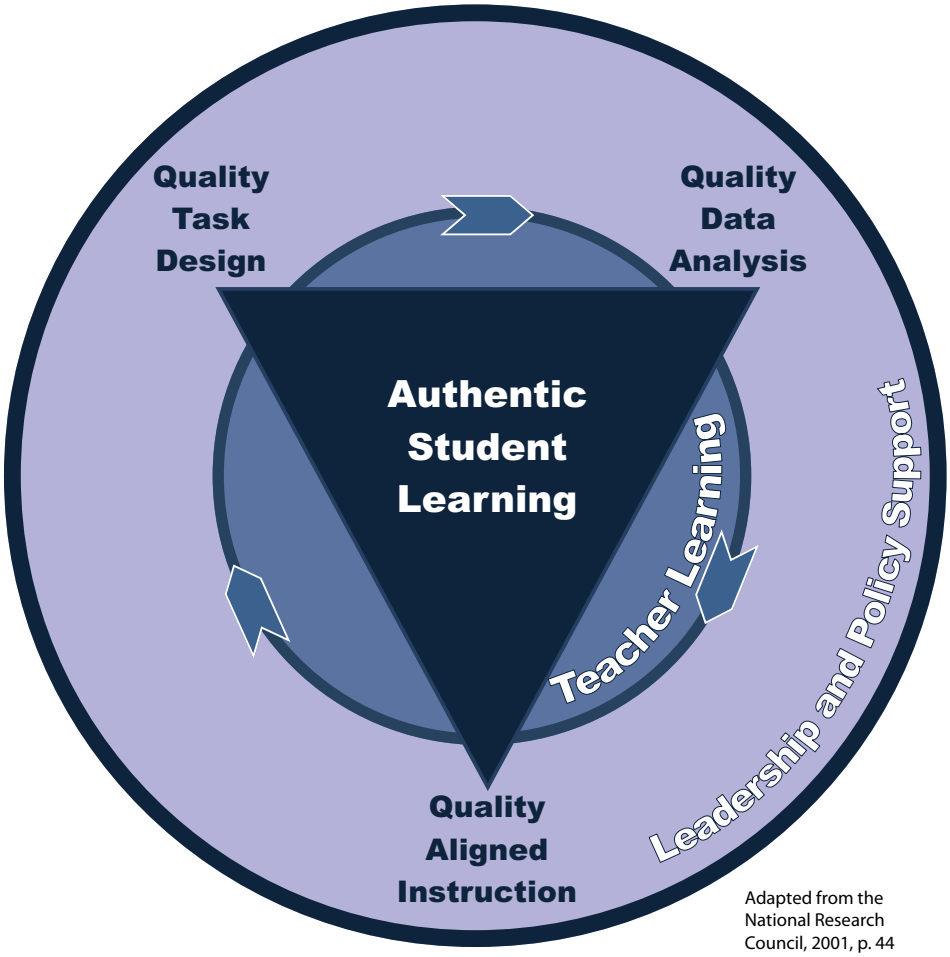
9. Document and adopt the local assessment policy through a process that builds the political will and support of all stakeholders.

10. Design professional development in communities of practice that supports all teachers in effectively implementing the policy.



APPENDIX: THE QUALITY PERFORMANCE ASSESSMENT (QPA) FRAMEWORK

QPA Framework



Adapted from the National Research Council, 2001, p. 44

The purpose of the Quality Performance Assessment (QPA) Framework is to provide guidance to teachers and administrators on how to design a performance assessment system.

QPA has developed the following definition of performance assessment:

Quality Performance Assessments are multi-step assignments with clear criteria, expectations and processes that measure how well a student transfers knowledge and applies complex skills to create or refine an original product.

QPA Framework Elements

The following elements guide the work of creating quality performance assessments:

TECHNICAL QUALITY

- **Aligned instruction**—To gain knowledge and skills, all students need instruction, based on college and career ready standards, that is accessible to their learning strengths and needs.
- **Task design**—Valid assessment tasks include determining appropriate levels of content and cognitive complexity, setting clear criteria for success, and ensuring accessibility for all students.
- **Data Analysis**—By examining student work and score data, practitioners interpret important information for planning future instruction and assessments.[12]

AUTHENTIC STUDENT LEARNING

Authentic student learning is the goal of this iterative cycle. QPA defines authentic learning as learning that is meaningful to students in which complex skills and content are embedded and transferable to new situations. Such learning can be assessed in multiple modes. Authentic learning engages students and provides opportunities for ownership and decision-making in real world situations. Because practitioner-developed performance assessments[13] are created by those closest to the learner, they effectively guide and assess authentic learning.

TEACHER LEARNING IN COMMUNITIES OF PRACTICE

Teacher learning occurs when teachers engage with the three elements of quality assessment at the vertices of the triangle—aligning instruction, designing assessments, and analyzing performance data. To implement performance assessments effectively, teachers must collaborate with colleagues to understand how students best learn content and skills aligned to the standards, how to design assessments to elicit evidence of student competency, and how to interpret the student work. Engaging in professional dialogue about aligned instruction, task design and analysis of student work creates a synergy and ensures the level of quality required for authentic learning through performance assessment.

LEADERSHIP AND POLICY SUPPORT

Leadership at the school and district levels is essential to student and teacher learning. Leaders must create and document policies that support performance assessment such as including authentic learning as a measure in promotion and graduation requirements. For these policies to be implemented with technical quality, leaders must devote professional development time to building teachers' capacity to align, design and analyze performance assessments. Furthermore, engaging families and the community in discussions of the value of practitioner-developed performance assessments builds political support for assessment policies that include authentic learning.

Evaluating the Technical Quality of a Local Performance Assessment System

The QPA Framework describes processes that may be implemented over time to design a local performance assessment system with technical quality. Many aspects of the QPA Framework may also be integrated into an existing local assessment system, or used as an entry point without a comprehensive assessment overhaul. For example, a first step in improving the technical quality of a performance assessment could be to collect and analyze student work samples at each performance level.

The more detailed descriptions of the QPA Framework elements guide practitioners in designing and evaluating a local assessment system. Each element includes a list of questions for evaluating the level of technical quality. If, upon review, the answer to all questions is *"Yes,"* the system likely has strong technical quality. If the answer to any question is *"No,"* QPA provides tools, professional development modules, and coaching to support schools in achieving technical quality.

QUALITY ALIGNED INSTRUCTION

Teaching and assessment practices are interwoven. Instruction and performance assessments are aligned and based on essential learnings[14] and appropriate national, state, district, and school standards. In addition, all students need instruction based on college and career ready standards. Once students have the opportunity to master these standards, assessments allow them to demonstrate what they know and are able to do. Answers to the following questions are used to evaluate the system's level of technical quality.

[12] The criteria are aligned with the three vertices of the National Research Council Assessment Triangle: Cognition, Observation, and Interpretation (National Research Council, 2001).

[13] The QPA framework focuses on performance assessment, although other types of assessments would also be included in a local assessment system.

[14] Essential learnings are the critical skills, knowledge, and dispositions that are prioritized as being essential for every student to master (Dufour et al., 2006).

a. Are promotion and graduation requirements aligned to essential learnings and appropriate agreed upon standards?
b. Do standards include 21st century skills, such as collaboration and communication through multiple modalities?
c. Are teaching and assessment practices for each course or classroom aligned to essential learnings and standards?
d. Do all students have adequate time prior to the assessment to build upon prior learning, and to both practice and master the essential learnings and standards being assessed?
e. Are students in different levels of the same course assessed with common performance assessments?

QUALITY TASK DESIGN

Effective assessment development begins with clarity about what students at each grade level should know and be able to do. A common understanding among faculty about content and cognitive complexity in the grades they teach and adjacent grades guides the design of prompts and scoring tools. Documentation of the assessment design and a validation process build awareness of expectations, allowing appropriate performance levels to be set at each grade level. Answers to the questions listed below are used to evaluate the quality of task design.

a. Do the assessments measure complex skills in multiple modes, transfer to new situations, and provide opportunities for student ownership and decision making in real world situations?
b. Are the content and cognitive complexity for each assessment aligned with established content and skills sequences and/or grade-level standards?
c. Are there clear criteria and descriptions of performance at each level and aligned rubrics to assess mastery of the standard(s)?
d. Are all assessment documents clear and understandable for all students? Do they address all aspects of universal design for learning[15], e.g., clear student directions, use of white space and font size, unambiguous graphics? Are there appropriate and alternative response formats to allow for reasonable and fair accommodations?
e. Are benchmark samples of student work that clearly define and illustrate work at each performance level available to all stakeholders?

QUALITY ASSESSMENT DATA ANALYSIS

Quality assessment data analysis involves examining student work and score data for *technical quality.* This means assessments must be valid, reliable and provide sufficient evidence of learning. *Valid* means the assessment measures what it was intended to measure (both content and intended level of rigor). *Reliable* means a group of teachers (or scorers) agree on what a rating means and can score it the same way. Reliability is essential because assessment data leads to high and low-stakes actions and decisions. To ensure that all students are demonstrating mastery, sub-group performance should be examined for bias in score results. *Sufficient* means students have been given a complete opportunity to demonstrate mastery resulting in enough evidence of learning being collected. Without technical quality there will be no guarantee that an assessment system has evaluated student learning fairly and completely. Conclusions from the data analysis provide information to practitioners for planning future instruction and assessment. Answers to the questions listed below are used to evaluate quality data analysis.

a. Is there professional development for scorers that uses scoring guidelines and benchmark student work samples?
b. Is there a process for collecting scoring data and auditing the scoring process to ensure scores are consistent across administrations and raters?
c. Is there a systematic process for analyzing scoring data for student subgroups?
d. Does the assessment provide the information about mastery of standards/content for which it was designed?
e. Do teachers and other faculty use performance assessment data to inform curriculum planning, instruction and (re-)design of assessments?

[15] Universal design for learning requires that assessments are accessible in language and format for the broadest possible range of students (Rose & Gravel, 2010).

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For accompanying tools see the QPA website: www.qualityperformanceassessment.org.

The mission of the Center for Collaborative Education (CCE) is to transform schools to ensure that all students succeed. We believe schools should prepare every student to achieve academically and to make a positive contribution to a democratic society. CCE partners with public schools and districts to create and sustain effective and equitable schools.

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Quality Performance Assessment: A Guide for Practitioners

This is a comprehensive guide aimed at assisting practitioners with the creation and implementation of quality performance assessments aligned to the Common Core State Standards. The QPA Guide builds on the work laid out in this paper. It is organized around the QPA Framework, providing tools and stories from the field for each Framework element. (In preparation for release in Summer 2012)

For more information about the QPA Guide, visit our website www.qualityperformanceassessment.org or contact us at QPA@ccebos.org.

Q P A

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Quality Performance Assessment

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Presentation on Competency Based Education

Discussion on Proficiency Based Advancement pursuant to Objective I.B. of the Department's and Board's Strategic Plan,

Hawaii State Board of Education Student Achievement Committee

November 18, 2014

Strategic Plan

- 1B Objective – All students are gaining the academic skills they need to succeed on the K-12 pathway and throughout their lives.
- 1B Strategy V – Implement proficiency-based advancement of students based on applicable standards of academic achievement, character development, and socio-emotional progress.

A Broader Context

- From “Proficiency Based Advancement”
- To “Competency Based Education”

Introduction

- Do all children develop at the same pace?
- Do all children learn to walk at the same age?
- Do all children learn to speak at the same age?
- Does it make sense to teach children what they already know?
- Does it make sense to teach children material when they have not met the pre-requisites for learning that material?

Introduction (cont'd)

- Is it possible for a single letter of the alphabet to communicate the competencies mastered by a student in a particular subject area?
- Is time spent studying a fair and accurate measure of how much a student has learned?
- Does it make sense for a teacher to have a class with competencies ranging from no readiness for the subject to already fully competent in the subject?

Attributes or Essential Conditions of Next Generation Learning

(per Council of Chief State School Officers)

- Personalized Learning
- Comprehensive System of Learning Supports
- World Class Knowledge and Skills
- Performance-Based Learning
- Anytime, Everywhere Opportunities
- Authentic Student Voice

The Five Elements of Competency Based Learning

- Students advance on mastery.
- Competencies include specific, measurable, transferable learning objectives that empower students.
- Assessment is meaningful and a positive learning experience for students.
- Students receive timely, differentiated support based on their individual learning needs.
- Learning outcomes emphasize competencies that include application and creation of knowledge, along with development of important skills and dispositions.

In One Phrase: “*Learning is best measured by mastery rather than time spent in the classroom.*”

How Competency Based Learning Works

- All students must demonstrate what they have learned before moving on.
- Teachers are very clear about what students need to learn.
- Common, consistent methods are used to evaluate student learning.
- While learning expectations are fixed, teachers and students have much flexibility.

“In a proficiency system, failure or poor performance may be part of the student’s learning curve, but it is not an outcome.” Oregon Education Roundtable

Hawaii Can Learn from Other States

- Maine
- Oregon
- New Hampshire
- Iowa
- Colorado
- Arizona

How States are Advancing Competency Education

- Drive policy by student learning outcomes.
- Guard high academic standards.
- Expand student options.
- Create shared vision.
- Offer schools flexibility.
- Commit to continuous improvement.

Eight Ways to Upgrade State Policy

- Establish innovation zones.
- Implement competency-based diplomas.
- Provide supports and eliminate barriers to advancement.
- Address systems of assessment.
- Address accountability and quality assurance.
- Expand learning opportunities.
- Re-engineer information management systems.
- Develop the educator workforce.

It's Not a Matter of Time: Highlights from the 2011 Competency-Based Learning Summit

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- Conclusion
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