DIGITAL LEARNING NOW!

THE SHIFT FROM COHORTS TO COMPETENCY

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This is the fourth paper in a series of interactive papers that provides specific guidance regarding the adoption of Common Core State Standards and the shift to personal digital learning.

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EXECUTIVE SUMMARY

Getting a driver's license requires passing a test and a driving demonstration – a competency-based system utilizing multiple forms of assessment. Professional certifications for doctors, accountants, and lawyers rely on test-based demonstrations of competence.

Promotion policies that require students to read before moving to fourth grade are an attempt to ensure that students are ready to succeed; such policies are an early effort to make the old cohort system more competency based.

Credit recovery courses and academies are competency based. Some rely exclusively on low-level end-of-course multiple-choice quizzes, which are an example of instructional models in which students move at their own pace and progress by demonstrating competence.

We can all think of examples – from professional licensure to video games – in which we must "show what we know" to demonstrate achievement. Why, then, should the education system be any different? Moving to a competency-based system is the logical evolution from the outdated factory model to one that can personalize learning and serve the needs of each individual student. For the future doctor entering medical school or the future pilot logging flight hours, a system based on competency also has the best potential to improve college and career readiness. Yet today's current system holds back students who could be excelling and moves students on who aren't ready.

CompetencyWorks defines competency education as a system of education, often referred to as proficiency or mastery based, in which students advance upon mastery. Competencies include explicit, measurable, transferable learning objectives that empower students. Assessment is meaningful and serves as a positive learning experience for students. Students receive timely, differentiated support tailored to their individual learning needs. Learning outcomes include the application and creation of knowledge, along with the development of important skills and dispositions.

This paper explores how competency education has the potential to connect learning to students' passions and interests, drawing them toward higher-order thinking and, therefore, deeper learning. And while technology is not a necessary component of competency education per se, advances in educational technology have made it possible to bring competency education to scale through an ever-expanding set of tools that can personalize and customize learning. The authors contend that without leveraging technology and discovering new ways to use time and resources differently, we will fail to achieve the goals of college- and career-ready standards like the Common Core State Standards (CCSS). Shifting to competency education is an important step in this process.

After reviewing the basic tenets of competency education, the authors discuss the ways in which the shift from cohorts to competency can improve student achievement and school performance. The most frequently asked questions related to competency-based learning are also answered. The paper provides an in-depth exploration of the issues related to the overall shift to competency education for education leaders and decision makers. Specifically, the authors describe 10 new capabilities of a competency-based system and 10 design choices to inform the necessary changes. The paper ends with a discussion of state policies that support competency education.

Competency Education & the DLN SmartSeries

The Digital Learning Now! SmartSeries illuminates critical implementation topics at the intersection of the shift to personal digital learning and CCSS. The most basic and profound shifts that will occur in this decade are the policies and practices that guide student progress through schools.

INTRODUCTION

A new era is upon us. We all know that the one-size-fits-all, conveyor belt model of education that tracks students into different life trajectories fails too many kids and leaves too many graduates unprepared to compete for jobs in the 21st century. But something is changing. Across the nation, states and districts are no longer satisfied with low achievement and attainment. Maine, New Hampshire, and Oregon have established a new direction for policy. Districts across the country are transforming their schools. Charters are using their capacity for innovation to break free of the time-based system. A new consensus is emerging. Together, we are calling for the creation of a customized education system that prepares all students for lifelong learning, including the important steps of college and career readiness. We call it personalization.

The current factory model of schooling – with its time-based, bell-curved grading system – will undermine all of our efforts to personalize education. No matter what standards we use, no matter the innovation, a conveyor belt model limits student achievement in two fundamental ways.

1. **It holds back students who could be excelling.** Advanced placement, dual enrollment, and early college have created opportunities for students to progress beyond the limits of the K-12 system, but this only happens in the final years of high school. Students are held back to the pre-defined pace of their age-based cohorts throughout their elementary and middle school years. We've handcuffed our children and ourselves.

2. **It moves on students who aren't ready.** Students who don't get what they need are moved along, grade to grade, with bigger gaps in their learning each year until they no longer see a future in school for themselves or graduate with a meaningless diploma. Many who are retained still don't get what they need. Credits driven by seat time put over-aged, under-credited students at risk of aging out of the system.

We don't need to spend any more time trying to understand what is wrong with the traditional system. It's not working. The question is, what are we going to replace it with? We have a new model: competency education.[1]

We've all experienced competency education in one way or another – whether it is progressing upon mastery to the next level in a video game, getting a driver's license after a written test and a demonstration of driving abilities, or trusting our doctor because we know he or she had to advance through multiple levels of building and applying knowledge to get his or her license.

Competency education requires schools to organize teaching at the levels of skills students bring into the classroom. Transparent learning targets, meaningful assessments, and embedded supports catalyze student motivation and ensure that students reach proficiency before moving onto the next unit or course. Districts that have committed to competency education have seen the results. Chugach School District in Alaska, one of the first districts to embrace competency education, transformed its schools – within five years, 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% to more than 70% by 2000. And, not only have the students benefited; but, during the same time, the teacher turnover rate dropped from 55% to 12%.[2] Within three years of implementation Adams 50 went from having one-third of their schools labeled by the state as turnaround schools to zero. During that same time, the percentage that was considered to be the highest performing schools jumped from 11% to 40%.[3] Lindsay Unified, in the Central Valley of California, is showing early indicators that they are also on the way to higher achieving schools. Proficiency rates in English Language Arts for 9th graders increased from 29% in 2009 to 41% in 2012.[4]

Competency education is advancing quickly from coast to coast. Oregon enabled proficiency-based learning over a decade ago. Maine has set a statewide course towards personalized, proficiency-based education, with a quarter of its districts already transforming their K-12 systems. New Hampshire established a competency-based diploma that requires students to demonstrate proficiency in all of their high school courses. Two-thirds of states have opened the door by offering credit flexibility through seat-time waivers. [5]

Competency-based environments connect learning to students' passions and interests, drawing them toward higher-order thinking and, therefore, deeper learning. Competency education drives students beyond just knowledge and understanding. Students demonstrate proficiency by applying, analyzing, evaluating, and creating new knowledge.

Competency education does not depend on technology. However, technological advancements in information management systems and in online and blended learning have removed the excuse that competency education is too difficult to scale. It's simply not true that personalized instruction for every student is too demanding and time consuming in today's classroom. With the digital tools at hand, we are now able to flip the education system to competency education. A management information system that can track student progress and blended learning, to allow students to take as much time as they need, is all that is required for competency education to thrive. In fact, it is only through a competency-based system that we will finally be able to see the benefits of digital learning for our children and communities.

In considering competency education in this paper, it is important to remember that we have yet to see a fully developed district or school model, because the current policies and practices are constraining what is possible. What is now called competency education must be considered an early innovation for what we will be seeing three, five, or 10 years from now. This paper first provides an overview of the competency education framework and three related case studies. Next it explores how innovation can be unleashed in a competency education environment. We close the paper with a look at the policy alignment that is needed to support a personalized competency education system.

EXHIBIT: Confused by the Terminology

Terms such as online and blended learning, personalized, customized, and competency based, are flooding our educational dialogue and are often used interchangeably. The ideas are related, but not the same. It's important to understand the difference.

Competency Education

Competency Education is a system of education, often referred to as proficiency or mastery based, in which students advance upon mastery. Competencies include explicit, measurable, transferable learning objectives that empower students. Assessment is meaningful and serves as a positive learning experience for students. Students receive timely, differentiated support based on their individual learning needs. Learning outcomes include the application and creation of knowledge, along with the development of important skills and dispositions (Source: CompetencyWorks).

Online Learning

Online Learning is teacher-led education that takes place over the internet, with the teacher and student separated geographically, using a web-based educational delivery system that includes software to provide a structured learning environment. It may be synchronous (communication in which participants interact in real time, such as online video) or asynchronous (communication separated by time, such as email or online discussion forums). It may be accessed from multiple settings (in school and/or out of school buildings) (Source: Keeping Pace).

Blended Learning

Blended Learning is a formal education program in which a student learns at least in part through the online delivery of content and instruction, with some element of student control over time, place, path, and/or pace, and at least in part at a supervised brick-and-mortar location away from home (Source: Innosight Institute). Compared to high-access environments, blended learning includes an intentional shift to online instructional delivery for a portion of the day in order to boost learning and operating productivity.

Personalized Learning

Personalized Learning is paced to student needs, tailored to learning preferences, and customized to the specific interests of different learners. Technology gives students opportunities to take ownership of their learning (Source: National Education Technology Plan).

Customized Learning

Customized Learning is informed by enhanced and expanded student data, which will boost motivation and achievement – keeping more students on track for college and career readiness (see Data Backpacks: Portable Records and Learner Profiles). The authors use the term customized learning to refer to a sequence of multi-modal learning experiences queued by a smart recommendation engine that is driven by a comprehensive learner profile.

All of these strategies are only competency based if they meet the definitional requirements above.

SHOW WHAT YOU KNOW
Learning progressions are typically made up of standards, while competencies are similar to, but different from, standards. As Rose Colby explains, ***"Competency implies much more than content and skills. By its very definition, competency requires that a student be able to transfer content and skill in a particular setting."*** In short, students in a competency-based system progress when they show what they know.[7]

A PRIMER ON COMPETENCY EDUCATION

Competency education always starts with knowing the student and where he or she is on the learning progression. Doing it right requires a demonstrated proficiency on a common pathway, or learning progression, toward college- and career-ready expectations, but it unlocks the power of personalization by letting every student take a unique path and pace. Students get the time they need to really understand the standards, and they have the opportunity to demonstrate what they know on a regular basis. These periodic demonstrations of knowledge and skills inform their progress and matriculation, versus our current system that simply groups and advances students according to their age. These ongoing assessments and periodic demonstrations of student knowledge and skills create a portable record and learner profile.[6]

What is Competency Education?

CompetencyWorks is an online community devoted to advancing the field, which is sponsored by the International Association for K-12 Online Learning, the American Youth Policy Forum, Jobs for the Future, and the National Governors Association. CompetencyWorks defines competency education as:

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

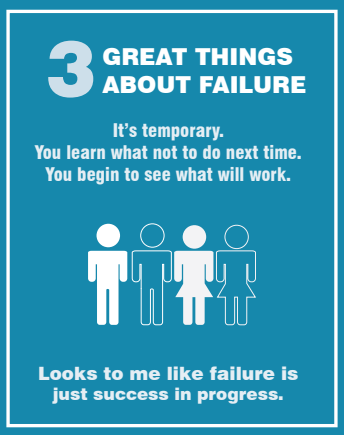
Competency education is rooted in core concepts and lessons learned from other reforms that have developed over the past 50 years – Bloom's instructional approaches, Essential Schools, standards-based education, and youth development, among others, are woven into a new framework. The development of competency education is decades long. Technology is unleashing it by generating demand for online and blended learning and enabling a powerful information system infrastructure. Until recently, it would have been impractical to suggest that competency education could reach every student without the personalization that technology now affords. The tools now exist to tailor instruction to individual student needs, collect and report student data down to each individual learning progression, and manage data-driven environments.

The main difference in competency education from the traditional time-based system is the focus on students learning to specific competencies; the amount of time and types of resources vary as needed. Accommodations can be made for students who enter courses with differentiated skills by adjusting to their needs and interests. A more holistic approach to development is often associated with competency education, or as Stanford University's Carol Dweck would say, a growth mindset.

The rapid expansion and increasing interest in competency education is being driven by a confluence of forces. More rigorous college- and career-ready standards, such as the CCSS, will generate shifts in instruction as teachers cover fewer topics but in a deeper fashion. Competency systems can help with this transition by adjusting and adding time and resources as necessary. Improvements in personalized learning and information systems have made it easier to pinpoint student needs and vary instructional approaches and interventions. The growth in online learning has created new options for many students and has demonstrated the opportunities and benefits of self-pacing when covering coursework. But it has also become clear that most students thrive in a mixed modality environment that is both personalized to their needs and supported by different ways of providing instruction, content, resources, interventions, and extra assistance.

Exhibit: Trevor and Tyler: A Competency Tale

Trevor, 8 and Tyler, 10 moved to Lake Park in late September. Having moved frequently, both boys were nervous about being placed in a new classroom, but had come to expect much of the same wherever they landed. School was often boring and uninteresting. But as they walked into the school office with their parents, they could tell right away that something was different. On the wall was a huge poster that read:



Mrs. Garza greeted them and explained that over the next two days the boys would be in orientation with three other new students who were enrolling that week. The boys were surprised. Orientation was fun. They talked a lot with Mrs. Garza about their other schools. She had them write and draw pictures about what they liked to do. They got to pick out books they thought were interesting and then read and talk about them with Mrs. Garza. They spent some time on the computer, on something called MAPS.[8] On Wednesday Mrs. Garza met with their parents. Meeting individually, she showed the boys and their parents on the computer what she called the learning map with levels. She explained that there were 13 levels that the boys would progress through, just like a video game, to get ready for college.

Trevor's map showed that in math he was on level three, but in reading and writing he was mostly on level one. Mrs. Garza explained that Trevor knew how to do a lot of things on level one like asking and answering questions about details in books and retelling stories. He could also read at level one. To get to level two he needed to work on two things: listening carefully to stories to identify who is telling the story, and comparing and contrasting the adventures and experiences of characters in stories. She said she would like to make a plan to get Trevor to level three over the next year, but it would mean that he would need to practice reading every day during X-block, a special time for students to work on their school work every day. She also said that his new teacher, Mr. Cheng, would help him and he could also practice his reading and comprehension skills on the computer every day. She asked Trevor, "You told me you didn't like reading very much. What if we found some books about dragons and monsters, since you like to draw pictures of them so much?"

Tyler's map was very different. He saw that a lot more of his map was colored in. Mrs. Garza explained that they hoped most students his age would be at level six. In English Language Arts he was almost all filled in, except that he needed more practice in revising his writing. His vocabulary was at level seven, but he needed more practice in using vocabulary from different domains. She told Tyler and his parents that since he loved to read, he could keep moving forward to higher levels. But he would need to spend a lot more time writing, not just reading. In math, Tyler was ready to start level six, but based on the MAPS assessment he seemed to have a few gaps at levels three, four, and five. She asked that for the next few weeks he spend X-block working with his math teacher, Mrs. Sen, and practicing on the computer.

Two months later at the next parent conference, Trevor and Tyler showed their parents evidence of their learning. Trevor showed examples of work from level two in which he compared and contrasted the most important points in two texts on the same topic. Tyler proudly reported he had filled in his math gaps, and that because he could work on the online curriculum during X-block he was now working at level seven. Mrs. Sen explained that Tyler really enjoyed the experience of progressing rapidly. They had decided to see if he would like the experience of exploring other ways to apply his learning. So instead of moving on to level eight later this year, she wanted to work with him on advanced work in level seven, which included creating a video explaining probability.

The boys' parents had never seen their kids so excited about school. Looking back on all their different experiences in several states, they were amazed at how quickly the new teachers got to know their sons and how smooth the transition was compared to other moves. They had always worried that the multiple moves would negatively impact their sons' futures, but finally felt confident that they had made the right choice (and one that would last) here in Lake Park.

Choice and the Drive for Excellence

What happens when students reach proficiency on a learning target? Many competency schools refer to it as a "3" (or if they still use letters it may be tracked as "B"). The "4" varies across schools to indicate exceeding expectations, additional application, creation of knowledge for the student, or some type of extra credit. In competency education, new choices for students and teachers develop as students reach that "3." They can go on to get a "4," they can move on to the next learning target, or they might return to a learning target to focus on turning it from a 3 to a 4. They could go work on a learning target in another class that they are finding difficult. Or they might work on something they really enjoy like art, music, work on extra-curricular activities, or reading an interesting book. Students may also participate in job shadows and community service. We can assume that students and families with a deep understanding of the competitive nature of college will focus on getting all 4's as quickly as they can. But in fact, that may not always be the best path for student development. There are many students with deep interests outside the school realm, or those who have intellectual curiosity driving their school experience, who may benefit from using the time in school for their own interests.

How Does Competency Education Improve Student Achievement and School Performance?

It's important to remember that competency education is a structure, a framework. What schools do with this framework makes a big difference for student achievement. If you apply less rigorous standards, you will get less achievement. If you don't use meaningful assessments to provide feedback, students won't be able to learn from their mistakes. If you don't pay attention to the cost effectiveness of interventions, you may find yourself with operations that aren't producing learning gains for all students.

Meet Students Where They Are: Competency education always starts where the students are. The first step is always to understand what skills students have developed, where there are gaps or weaknesses, and where they are excelling. Schools may group or regroup to organize teaching resources to help students move forward. They may use online and blended learning to respond to wide levels of differentiation. Schools then monitor and track student progress along a pre-developed curricular learning progression such as the CCSS. Students are never simply passed along to the next teacher or given a grade D that symbolizes that they didn't learn what they needed to learn.

Progress Upon Mastery: Competency education requires (and allows) students to progress upon mastery, which has three important implications:

- *Investing in Proficiency:* Schools continue to invest in students – by offering extra time, interventions, and alternative methods of learning – until they have reached proficiency and are ready to move on to the next learning target. It's that simple: all students progress and reach proficiency before moving on. For our underserved students who have borne the burden of our factory model, this promises to produce enormous learning gains as they get the help they need, when they need it.

  This doesn't mean that all learning is linear or within one domain. Schools can organize their curriculums based on interdisciplinary or clustered learning targets, with the understanding that students will need to become proficient in them. Some schools distinguish between learning targets that are the backbone of future competencies within a domain and those that students need to be familiar with (but not necessarily proficient in) to advance.

- *Accelerating Learning:* Competency education creates the opportunity for accelerated learning for students with large gaps in their education, or those who are over-aged and under-credited, as well as for high-flying students who have strong interests within domains. It creates

opportunities for students to stay focused on the core competencies of a course, advancing as quickly as they can, which means they may be learning at 1.25, 1.50 or even 2 times the expected "teacher pace." We can currently see this primarily in highly self-paced, competency-based schools such as Boston Day and Evening Academy or Florida Virtual School. However, even in core district operations such as Hall-Dale Middle School, a school in Maine's Cohort for Customized Learning, there are examples of students moving ahead of the teacher pace in an age-based cohort.[9] At Muscatine School District in Iowa, research found that 3% of students in a competency-based environment accelerated beyond the teacher pace.[10]

- *Removing the Ceiling on Achievement:* There are only a handful of examples where we can see the implications of how competency education can remove the constraining ceiling on achievement. At competency-based online schools such as Florida Virtual School, FLVS (where legislation enabled the school to be competency based) and Virtual Learning Academy (operating within New Hampshire, where high school credits are competency based) we can begin to see the practices of open entry/open exit that allow students to advance more quickly than the Carnegie unit allocates for completing the course. At competency-based elementary schools, it is easy to imagine that blended learning will allow some students to advance well beyond their age-based expectation when they have family-based knowledge, interest, or aptitude in a specific domain. Thus, we are likely to see students begin to take some middle school courses in elementary school, high school courses in middle school, and college courses early in their high school careers.

Student Motivation and Engagement: Competency education requires transparency about the competencies, learning targets, rubrics, and student progress. This transparency is the special ingredient that allows students to own their own learning, which can be transformed into higher levels of motivation and engagement. Personalization provides greater opportunities for student voice and choice. Of course not all students will be motivated and engaged all the time. However, the expectations for many of the dispositions needed to be successful in school are also transparent, and can facilitate dialogue with students to help them mature.

Unique Pathways: The combination of competency-based and blended learning environments makes it possible to customize every student's learning experience. Blended learning allows students to vary their rate, time, location, and path. Instead of being widgets on the conveyor belt, not knowing why they are there or what it all means, students become the co-designers of their education.

Educational Continuity: Across the country, low-income families transfer in and out of schools in search of safety, high performance schools, housing, and jobs. As families break apart under these pressures, some students become homeless, are placed in child welfare, or end up in juvenile justice systems. This high mobility

in low-income communities impacts students and challenges schools. If portability is built into the competency education system, students will be able to carry their own learning history and progression. With online learning, they may even be able to continue learning while their lives are in upheaval.

Cost Effectiveness: Competency education may eventually generate overall cost savings. (Remember, the time-based system does not even consider cost effectiveness. It's all about inputs). The first step is to improve cost effectiveness with a deeper understanding of the resources it takes to provide adequate intervention and opportunities to help low-income students and other underserved students become college/career ready. There should certainly be cost savings for state budgets and families if more students can tuck a few college courses under their belt by the time they leave K-12. Districts and schools benefit if students can focus on competency recovery, like at New Hampshire's Virtual Learning Academy Charter School.

If states and districts work to streamline the K-12 and higher education systems so that 6th grade students can do 8th grade-level courses, 8th graders can do 10th grade, and 10th graders have access to any college-level courses, we should be able to generate some savings and help families reduce the cost of higher education. Cost effectiveness will also increase with these changes, especially if they give schools more scheduling flexibility to provide more time for students to become proficient, rather than using clumsy and expensive interventions like summer school and retention.

Unleashing Innovation: One of the major contributions of competency education is the role it can play in unleashing greater benefits from other innovations. First, allowing students to progress upon mastery means we can finally take advantage of online and blended learning. Students can accelerate the rate of their learning to catch up with (or move beyond) teacher pace. Students can advance in some disciplines and not in others. Students doing upper-level courses will become a norm. Second, competency education, with its clear learning progressions and rubrics, allows us to make sense of the explosion of digital tools and mobile learning applications. With better data, we will be able to measure which learning experiences work best for students with a particular profile. The viral adoption of learning apps has already made the system more dynamic and responsive. We are only at the beginning of understanding what online and blended learning can enable, as it is constrained by the traditional time-based system.

As we build up more content and common tagging language that allows us to quickly find appropriate options for students, personalization and choice will expand, which will reinforce student motivation and engagement. In the next section we will look at this in greater detail.

For Students Who Are Behind

It takes courage to confront the tragedy of a child or teen navigating school more than two years behind in skills. Competency education doesn't create this problem, but it makes it more explicit. In fact, once competency education is embraced it's impossible to ignore problems; how are we going to help all these students catch up?

At the elementary school level, 32 states have embraced a policy to end social promotion for third graders who are not reading on grade level. This demand for proficiency is difficult for a time-based system to deal with – and asking a student to repeat a grade level of the same instruction in all subjects is not a very effective solution. The best solution, as presented in this paper, is a system that personalizes instruction and creates more time when and where it is needed.

Students entering high schools with elementary school-level skills are now placed in time-based courses, often with very little scaffolding or support. Teachers have been certified to deliver secondary-level courses, not to help fill elementary skills gaps. As a result, many students lose hope and disengage. Without the capacity to help students get back on track, schools lose hope as well, and guide students out the door prematurely.

- Competency education can help resolve the underlying tension:
- Be honest and transparent about where students are on their learning progression,
- Focus on critical skills and not "covering the curriculum" in time-based courses,
- Create day schedules and yearly calendars that double the core learning time available for struggling students, and
- Recognize schools, networks, and districts that have developed acceleration strategies.

Boston Day and Evening Academy (BDEA), featured in a recent JFF report, is an example of a school that is taking this challenge on head-on.[11] BDEA started by creating a process for aligning its competencies with the Common Core, taking the academic needs of their student population into account.[12] As more schools adopt the CCSS, this will be a growing problem that can be addressed through competency-based models that enable the kind of differentiation these students need.[13]

At Muscatine Schools in Iowa, teachers monitor students based on where they are on learning progressions – either remediation, intensive interventions, or acceleration. Early results from Iowa's Competency-based Instruction Task Force show that following implementation of the pilot projects, 0% of students earned D's or F's in competency-based education classrooms, compared to 38% of all students in the 2011-12 school year. Additional data points expand the positive impact of competency-based education on students requiring remediation:[14]

- Six percent of the students engaged in learning contracts or short-term remediation reached proficiency prior to the end of the term, and
- Four percent of the students needed intensive remediation, which required additional time beyond the term.

Frequently Asked Questions

Listening to the critiques of competency education is important, as it helps us think through unintended consequences and increase our sensitivity to flawed implementation that is likely to produce poor results. Below are a number of questions and concerns that have been raised.

1. How can a teacher cover all the standards if some students are going to need more time? In the traditional system teachers are responsible for "covering the curriculum," whereas in competency education they are responsible for students reaching proficiency in applying the competencies that drive the curriculum. A competency system requires a focus on priority outcomes, at least some use of supplemental and asynchronous digital instruction, and an increased level of student ownership of expectations, learning, and progress. If students' needs are too great, the school leadership and teachers will need to provide adequate resources, interventions, and student support so that a single teacher is not responsible for doing everything for their students. For example, competency-based schools embed support into the school day and calendar with transition times for students who are behind pace. It's likely we will begin to see school calendars and schedules change so that students who need extra help can continue learning throughout the year. When it comes down to it, what's more important: students learning or covering the curriculum?

2. Will this mean a lot more testing? One of the fears about competency education is that it will result in a "factory model on steroids" with students trudging along lock-stepped and bubble tested every step of the way. But competency education is about making sure students learn; the key ingredient is constant and ongoing feedback to both teachers and students. This approach doesn't mean more testing per se, but rather authentic assessments that come in all shapes and forms, such as regular demonstrations of learning-like projects, simulations, reports, and presentations. Also, with more game-based and adaptive learning, assessment is getting pushed into the background in favor of more data gathering and fewer tasks that feel like testing. Think feedback rather than grading students using tests, and you'll start to see the power of competency education. Bob Lenz, Co-founder of Envision Schools, explains, "Once we have defined the outcomes, we must create the assessments to evaluate students' mastery of these deeper outcomes. A simple bubble test will not suffice. Assessing deeper learning requires performance – we assess collaboration by observing collaborative work and through student reflection on their ability to collaborate. In this way, we move from assessment of student learning to assessment as student learning."[15] The challenge is ensuring the right assessment tools are used at the appropriate times to accurately measure student mastery.

3. How should states approach the potential funding issues that may arise through early graduation? Students in a competency-based system will get the time they need to become college or career ready, or be able to graduate early or use the extra time to earn college credit while in high school. Competency-based approaches offer new opportunities to recognize and reward schools that are able to help students complete their work faster or advance students to college-level work. School systems could be rewarded for any savings that might be generated with students completing early and also allowed to reinvest dollars to provide supports for students who are struggling.

4. Does competency require little steps and avoiding big challenges? Some critics are concerned that competency-based learning assumes that linear one-step-at-a-time learning is always best. That's not the case at competency-based networks including Big Picture, Edvisions, or Expeditionary Learning. Many schools create interdisciplinary opportunities for students to develop and apply skills. At Hybrid High, students have greater flexibility and access to staff with extended school hours. It's important to remember that students who are struggling or have experienced years of academic failure find small units empowering. They experience success and build confidence that they can be a "good" student. Making Mastery Work said, "Many students find competency education more motivating and engaging than traditional approaches. The chance to progress at one's own pace is particularly important to struggling students."[16]

5. Is competency education the same as standards-based education? Similar to standards-based learning, competency education focuses on outputs rather than inputs. The big difference is competency education understands that trying to get students to the same outcome with the same instruction, within the same amount of time, is impossible. We've tried to do outcomes-based and standards-based learning in our current time-based system, but without systemic changes, students are still shackled to their cohort and do not have the ability to take more or less time as needed. Not only do we want to get students to become proficient on the same set of standards, we want to lift the ceiling off the K-12 system and let students soar. Digital tools also let us respond to students at both ends of the spectrum to make sure they are getting the help they need when they need it. Competency-based learning frameworks should be seen as a way to help all students master the expectations outlined in college- and career-ready standards such as the CCSS.

6. Do the CCSS and a competency-based system impose order and progression at the expense of meaningful, exciting learning? It depends on how the CCSS is implemented. If you implement it in a rigid, boring way that's what you will get. Competency education actually provides opportunities for teachers to personalize instruction. Students should have some choices when it comes to how they show what they know. It is possible to build achievement recognition systems that creatively combine big challenges with progressions through standards. The authors have observed in competency-based environments a high level of transparency about learning targets, students working at their own pace and building evidence of their learning, teachers organizing themselves to enable students to get what they need, and a high level of collaboration. Next-generation platforms will make it easier to mix big and small challenges and manage competency-based progress and matriculation. Making Mastery Work acknowledged, "The biggest logistical challenge to creating competency-based initiatives is the lack of high-quality data and technological tools to assess and monitor student progress that are tailored to each initiative's specific approach."[17]

7. Could competency education lower expectations? One concern is that personalized learning may lead to personalized expectations that could be lower than what is expected of standards, graduation requirements, or what is needed to succeed in college or career. That's a well-intentioned concern, but it should be impossible as long as there is a commitment to rigorous standards and a valid and reliable assessment system. A competency-tracking system that follows students will allow teachers to personalize instruction from day one and will set high expectations for all students. There are some important elements to pay attention to in competency education to make sure it works for all students. First, pacing matters. Self-paced does not mean any pace. Schools and teachers need to offer timely, differentiated support when a student is showing signs of slipping behind. Second, students enter a school and classroom with different skills. If it is a relatively narrow

differentiation, the goal should be to accelerate their learning to get them caught up with the other children. Once behind shouldn't mean always behind. The toughest challenge we will face exposing the current practice of letting students with significant skill gaps flounder in courses, giving them C's and D's and passing them onto the next course. In competency education, this practice is eliminated. The result is that competency educators are struggling with how to respond to students with elementary-level skills who are unable to become proficient in high school courses within a semester or even two. This isn't a by-product of competency education. It's the solution to America's crisis in achievement.

8. Will competency education decrease the achievement gap? Competency education is designed to close the preparation gap with significant increases in the proportion of students that will complete high school and be better prepared for college and careers. Improving proficiency for our low-income and minority students is a critical step for our country, given the tremendous demographic shift we are undergoing. Once the ceiling is taken off the K-12 system and students are allowed to accelerate their learning, it is likely that higher-performing students will do even better. So in the short term, as we come to understand the types of rich learning experiences that are needed to support traditionally underserved students, all students will do better, but the achievement gap may not be dramatically reduced by shifting to competency-based learning alone. In addition, since competency-based systems focus attention on students struggling with concepts, extra supports or interventions can be assigned to help students catch up.

9. Where do we start? The most important thing is to make sure your team embraces a "growth mindset." Competency education won't work if you think some students are smart and others are not. The next thing to do is get your feet wet – standards-based grading is a good way to engage educators in reflecting on the traditional system and getting used to operating with greater transparency with students on what they need to do in order to succeed. Blended learning will also open the door to what it means for students to have adequate time to succeed and explore multi-age groupings, pacing, and personalization. Expanding district capacity to serve over-age and under-credited students is a great opportunity to implement a competency-based school or Flex Academy such as Boston Day and Evening Academy, Diploma Plus, or Advance Path. Or create innovation space through piloting that starts to challenge the agricultural calendar. Policymakers waive seat-time requirements and other outdated regulations that interfere with competency-based models. See how more opportunities for students to get the time and help they need can be embedded into the school calendar with daily time for students to get help during the school day, trimesters with flex-blocks on either side, intersessions, and next-generation learning. Consider joining a network such as the Reinventing Schools Coalition in order to learn from your peers and stay on the cutting edge.

EXHIBIT: Unleashing the Possible: Competency Education and Next-Generation Learning

The gains seen in Chugach, Adams 50, and Lindsay have been done primarily without the advantage of digital learning. Competency-based school networks are often high-access environments with basic production tools but weak information management and content delivery tools. This section explores how digital learning can be powerfully applied within a competency-based framework to increase personalization and the rate of learning. As you read this, imagine what will be possible when an array of digital tools is available in a personalized competency education environment. The sky is the limit.

KNOWLEDGE MAPS

Making clear what students need to know (and be able to do) in linked progressions, allowing students to take ownership of their progression. Resources such as Khan Academy allow students to see the map and make choices about their next steps. MasteryConnect helps teachers manage formative assessments and stay on top of how students are advancing through state standards.

ADAPTIVE INSTRUCTION

Adaptive assessment with linked instructional units makes it possible to identify learning levels and deliver tailored units of instruction. Products such as Dreambox, i-Ready, Compass Learning, and Read180 can all be used as primary or supplemental instruction to provide students with rapid feedback, self-pacing, and focused attention on their learning.

MEANINGFUL ASSESSMENT

Assessment that provides useful information to students and teachers is a necessary ingredient of competency education. If students don't receive timely feedback on their progress on learning to apply a concept, their learning is slowed or even halted. Show Evidence is an emerging performance-based assessment system used by some of the schools in the International Studies Schools Network as well a group of networks sponsored by the Hewlett Foundation.

COMPETENCY-TRACKING SYSTEMS

Competency education generates large amounts of data about student learning. A standards-aligned gradebook that can be customized around a specific progression and/or gateway in competency systems helps students, teachers, and parents focus on where students are and where they are going. These gradebooks are often dynamic, visually displaying progress as students show evidence of their learning. Edvisions schools use Project Foundry to track competency within project-based environments. Adams 50, Lindsay Unified, and many districts in Maine's Cohort for Customized Learning depend on Educate. Teachers in over 25,000 schools use MasteryConnect to track competencies.

ACHIEVEMENT RECOGNITION SYSTEMS

Competency education opens the door to new ways of recognizing progress, including informal learning opportunities. Competency educators separate academic competencies from habits or lifelong learning competencies such as collaboration, professionalism, and cultural awareness. Specific achievements may be represented by badges or other data visualization strategies. Most badge systems will have linked assessment systems. Simple systems use end-of-unit quizzes. Khan Academy has badges linked to practice items that track progress through knowledge maps. More robust systems will require multiple forms of assessments, artifacts captured in portfolios, and periodic public demonstrations of learning. Asia Society's International Studies School Network is developing a Globally Competent Youth Badge System that will give high school students the opportunity to earn badges based on the four domains of global competence.

PLAYLISTS

A growing number of sources provide grade-level resources and enable manual playlists such as PowerMyLearning, GooruLearning, and CK12. New Classrooms provides customized playlists in middle-grade math based on prior performance. Learner profiles and smart recommendation engines will improve the ability to customize playlists over the next few years.

PROJECT-BASED LEARNING

Creating opportunities for students to delve into standards through project-based learning takes time. New tools such as Project Foundry and the Buck Institute are making it easier to construct standards-aligned projects. Echo, the project-based learning management system at New Tech Network, is an early example of how schools will manage student progress. Teachers can even personalize the standards within similar projects so students can build the skill they need based on their learning map.

SELF BLENDS

A robust competency education system will have students advancing beyond traditional grade levels. Furthermore, students wanting to accelerate their rate of learning will be in search of open entrance/open exit courses. Providers like Florida Virtual and New Hampshire's Virtual Learning Academy offer rolling enrollment into competency-based courses. Alternatives for over-aged and under-credited students, like AdvancePath and SIATech, draw on blended learning to allow students to make individual and accelerated progress toward graduation.

In summary, competency systems will make clear what students need to learn and be able to do (maps), options for learning what they need to learn (playlists, projects, and self blends), and how they will show what they know (badges). Next-generation platforms will integrate many of the above features to make customized competency-based pathways for every student manageable.

THE SHIFT TO COMPETENCY EDUCATION

Over the past three years, states have opened up innovation space for competency education. Maine and New Hampshire have developed statewide polices to establish expectations for competency-based diplomas, Oregon has piloted models to build capacity, and another 33 states have provided either credit flexibility or waivers.[18] However, eliminating seat time is not enough. Districts, schools, and teachers are left to navigate two systems, using resources that might otherwise go towards teaching and learning. Higher education, scholarship programs, families, and students are left trying to navigate systems that are no longer using common language within transcripts or out-of-date methods of determining academic success. Flipping the systems will require us to align policies, operations, and practices around the core elements of a competency education model.

We are humbled by the creativity necessary to shake off the time-based practices and fully align the system around learning. We propose the following 10 elements of a competency-based system without knowing all the answers or exactly what it might look like.

10 New Capabilities of a Competency-Aligned System

Competency education isn't just a modification or enhancement of the time-based system. It is a complete re-engineering around an equity-focused, high-achieving, continuously improving, customized education system. This re-engineering will create new capabilities, which will require re-tooling policies, building organizational capacity, and managing the re-alignment process. It will take time to understand what it really means to have all students progressing in their learning.

1. Set College- and Career-Ready Expectations:

Competency education is explicit in its expectations for students to demonstrate college- and career-ready knowledge, skills, and dispositions.[19] In addition to traditional expectations and measures (credits, grades, test scores), competency systems focus on applying skills and incorporating broader demonstrations of dispositions that correlated with success in college, careers, and citizenship including agency, initiative, resilience, and adaptability. Competency schools separate the academic competencies from the dispositions needed for success in college and careers. Portfolios and learner profiles built as a result of a competency system will allow young people to communicate to potential employers and institutions of further and higher learning what they know and can do.

The alignment process between a K-12 competency-based system and post-secondary institutions such as college, training providers, union apprenticeships, and employers is a two-way conversation with post-secondary institutions that need to make some adjustments in order to make competency-based diplomas meaningful. Higher education will need to be clear about the skills needed for admission without remediation so that students can demonstrate those competencies during high school. Furthermore, admissions processes need to recognize that the traditional GPA, and its time-rooted value, has a very different meaning in a competency-based environment. The pressures on the cost of higher education may push it towards competency-based models that could enhance alignment with the K-12 system.

Employers will need to move beyond their use of educational achievement (such as a B.A.) as a proxy for skills. It would be helpful if they also began to use competencies that are valued in the workplace as a mechanism for recruitment and hiring, as is being explored in New Options in New Mexico.

Competency education isn't a silver bullet. Just like in today's traditional system, if the standards (and proficiency of those standards) are not upheld, the system will not produce results. Competency education's transparency makes it much easier to discuss "what good looks like" within and across schools. Yet states, districts, and schools will need to put into place teams that are responsible for ongoing spot checking to make sure proficiency in one school is the same as proficiency in another.

2. Measure Learning Gains: Do we really know how long it takes students to learn something?

Or how long it takes students from concentrated areas of poverty or parents with less than a high school degree with limited exposure to the world to meet college- and career-ready standards? As we move forward with competency education, research will be invaluable in helping us understand the median amount of time across all income levels to become proficient in the standards outlined in the CCSS. Data about student learning is now being generated by adaptive software systems that provide insights into the different trajectories students take over time to master a concept. Over the next decade, if not sooner, we should have a better idea of how to organize units of learning, at least within domains that can serve as benchmarks to guide pacing, monitor student achievement, and evaluate school performance.

One of the most important concepts that we will have to fully define and build into the system is pacing – the process of keeping students on the track to college and career readiness. Pacing will require a different meaning at different ages, especially for students who have gaps in their learning. A student entering first grade without any of the readiness skills – such as knowing the alphabet, colors, and numbers – will be behind what would be expected within the first level or grade of school. Schools will work with families to plan a trajectory to help them catch up within a reasonable amount of time, such as two years.

Keeping students on pace is a function of student motivation, effectiveness of the adaptive instruction, and support and opportunities. Competency education innovators embed the first set of supports into the daily operation of the school so that every student has the chance to get extra help the very day they are challenged by material. Federal programs, state policies, and district operations will need to be aligned to provide schools with as much flexibility as possible so that timely, tailored support can be provided to students. We must also open our minds and policies to the idea that sometimes support may consist of enriching opportunities that help students build up "non-cognitive" skills, see real-world application of skills, or broaden their horizons and spark their curiosity. It is only through ongoing continuous improvement and attention to cost effectiveness that we are going to truly understand the right mix of supports and opportunities to help all students achieve.

In a competency education system, students should only take summative assessments when they have been able to demonstrate that they are proficient in the standards and/or curriculum. In addition, summative assessments should be administered several times throughout the year to give students multiple opportunities to demonstrate mastery.

3. Know Students: Competency-based systems will know far more about their students than traditional forms of education. A competency-tracking system gathers much more achievement data than traditional grading systems, and much of it is in the form of authentic student performances. In Data Backpacks, the authors described comprehensive learner profiles. It will soon be easier to gather achievement data and related keystrokes that will build a motivational profile to help identify the kinds of experiences that produce persistence and performance for individual students.

In addition to the Carnegie unit, attendance is one of the essential metrics upon which the entire education system is based. Attendance is important in competency education as an indicator of a lifelong competency, but is not directly related to academics. As information systems develop that show student learning progressions, districts and states can then monitor student participation and progress rather than attendance.

4. Create Responsive Learning Opportunities: The current approach and its accountability system are designed around a linear path to high school graduation. The competency-based model will need to have the capacity to respond to students with gaps in their education, students with high mobility, students taking a leave of absence from school and returning a year or two later, and students who want to advance more quickly – either continuing onto college-level courses while in high school or graduating from high school in less than four years. This responsiveness may include creating more capacity for open entry/exit in courses, more modularized units of learning than semester-long courses, creating transition time before and after courses, allowing students to advance in some domains and not others (even beyond their school's offerings), and an unlimited ability to take college courses in high school.

Competency-based systems will provide 24/7/365 access to a variety of engaging, standards-aligned, open, and proprietary learning experiences (i.e., instructional materials) and full- and part-time online learning opportunities.

5. Benchmark Effectiveness: Competency education will benefit from ongoing improvement structures that provide continuous feedback on: how schools are doing, how traditionally underserved students are achieving, how schools compare to each other, and which districts and schools are not implementing competency education effectively.

In the input-focused time-based system, we know how much we spend on education but we don't look at cost effectiveness, because it isn't designed to be effective. In a competency-based system, we will want to establish mechanisms that allow us to understand cost effectiveness, given that we are trying to produce the highest achievement gains possible. There will never be a single best way to educate students, especially as digital innovations continue and our country adjusts in response to the global economy, demographic changes, and other forces. But we can have healthy discussion based on cost effectiveness that takes the starting points of students in schools and courses into consideration.

Competency-based systems create the potential for vendor payments based on success. An early example of this approach is New Classrooms (inventors of School of One), which pays some content providers based on use. Competency-based systems have the potential to pay for return on investment to the learning experience level.

6. Allow for Flexibility in Time and Resources: Next Generation Schools, and many of the competency education innovators, have opened the door to understanding that the solution may not be more time but a different use of time. Does the teaching staff all need to be in school and working at the same time? Do all the students? Can schools run year-round, with students participating to the degree required to stay on pace? Can more modularized courses be designed so that students can enter schools and courses smoothly with less disruption to their education and the classroom? Can there be flex times at the beginning of a course for students with gaps to build up their skills and at the end of a course for students who need some extra time to build up the evidence of their learning? It will take time to deconstruct our reliance on the agricultural calendar and establish school operations that are based on the flexibility of a competency-based, blended world.

We'll need tools that allow districts and schools to manage their budgets with greater flexibility to meet students' needs. For example, New Classrooms uses a smart recommendation engine and dynamic scheduling to manage resources effectively. New funding policies, no longer dependent on specific hours of instruction, may make this easier. Digital Learning Now! recommends weighted funding to match student risk factors. As we gain evidence about the costs of helping low-income students succeed in college- and career-ready standards, we can shape weighted funding that will support extended learning times for students who need it.

7. View Teaching as a Team Sport: Schools must start by understanding where students are on their learning progression rather than placing them in an age-based classroom, in order to break away from traditional ideas about how schools operate. Teachers describe it as no longer thinking about "my kids," but "our kids." Teachers work together, across classrooms, grouping and regrouping students according to where they need help. If there is a large group of students stuck on the same concepts, the best math teacher might be pulled out for intensive tutoring.

Competency-Driven Professional Development: Walking the Talk[20]

At Summit Prep, a model high school south of San Francisco, teachers are walking the talk. Extensive professional development, evaluation, and compensation are all built upon a competency-based model. It's a skill-based system that is focused on what teachers need to know (and be able to do) to accelerate student achievement. At Summit Prep, teachers know where their skills fit on the continuum of seven measurable dimensions (Assessment, Content, Curriculum, Instruction, Knowing Learners and Learning (i.e., special education and ELL)), Leadership, and Mentoring. Each dimension has four levels of proficiency.

As Summit founder Diane Tavenner explains, "Teachers are charged with gathering and presenting evidence of their performance as demonstrated in student work and achievement. For example, a teacher wanting to be evaluated as highly proficient on Curriculum/Differentiation would have to present evidence he/she consistently differentiated throughout the course, and that students of all levels of prior knowledge and skill were able to access and demonstrate mastery as a result." Placement and movement on the continuum are based on a combination of principal evaluation, peer evaluation and self-evaluation. It usually takes at least two years to move up a level. Getting the top salary means that a teacher has to be an expert in at least four of the seven dimensions.

Student achievement is the basis for all goals that determine annual performance bonuses of up to 10% of base salary: 50% individual, 25% team, 25% school.

Teaching in a competency system emphasizes the facilitation of learning. Competencies are held to the same expectations, but how students reach those competencies can vary. Teachers increasingly take on the roles of co-designing curricular tasks that are engaging to students, developing adaptive instruction that provides rapid feedback and supplemental instruction as needed, and effectively using student data to ensure all students are advancing in their learning. Digital tools and information technology are critically important to help teachers focus on student learning. Competency systems, especially those with a strong blended curriculum, will enable differentiated (different levels) and distributed staffing (different locations) models that extend the reach of great teachers, support new teachers, and provide compelling career opportunities for experienced educators.

The dynamics of professional development will be dramatically altered. There is currently a lot of "teacher talk" about student progress, what proficiency looks like, and revising competencies and rubrics to be as powerful as possible to help engage students in learning. Professional development is often realized through peers working together and sharing their expertise; when they find themselves stuck, they organize the type of coaching they need to expand and enhance their teaching toolbox.

Inevitably, policies related to teacher certification, evaluation, and compensation policies will need to be revisited. One of the interesting challenges that competency education innovators complain about is that teachers are certified to teach in specific age-based schools and are limited in their response when students advance to higher levels of the domains or need help at lower levels. This limitation will pose challenges for students who are way behind or ahead. Online learning may resolve portions of this problem, but certification policies will eventually need to be revised.

8. Offer Students Coaching and Support in a Personalized Environment: Most competency systems will have more options regarding how to learn and how to demonstrate competence against a set of academic standards. Competency systems foster student ownership and can take advantage of asynchronous (teacher independent) learning experiences. With greater personalization and increased degrees of freedom comes formal strategies to provide coaching and guidance.

Competency-based schools such as Kunskapsskolan, the personalized Swedish school network, use a learning coach model to work with students and families. Other schools use advisory structures or invest in daily activities to keep students focused and accelerate their maturation as an independent learner.

Personalization can also mean investing in partnerships. New Hampshire has established statewide policy for students to build and demonstrate skills in extended learning opportunities. Schools that value real-world experiences such as internships and service-based learning, like those in the Big Picture, Expeditionary Learning, and Diploma Plus networks, invest in community relationships and student preparation.

9. Sustain a High-Access Environment: Although it is not essential, technology is the engine behind the rapid responsiveness to students, personalization, and accelerated learning that is needed to bring competency education to scale. Districts and schools should offer educators the tools they need to stay on top of student learning and progress, provide meaningful feedback, and manage multiple forms of assessments. Students will need access to adaptive software to supplement their learning and internet access devices with multimedia producers.

To take full advantage of competency education, high-access environments will need to be available at home, within the community, and at school. Schools should work with local governments and providers to expand home and community access, so that learning does need to stop at the end of the school day.

See Funding the Shift to Digital Learning: Three Strategies for Funding Sustainable High-Access Environments for funding guidance from those who have successfully made an affordable digital conversion.

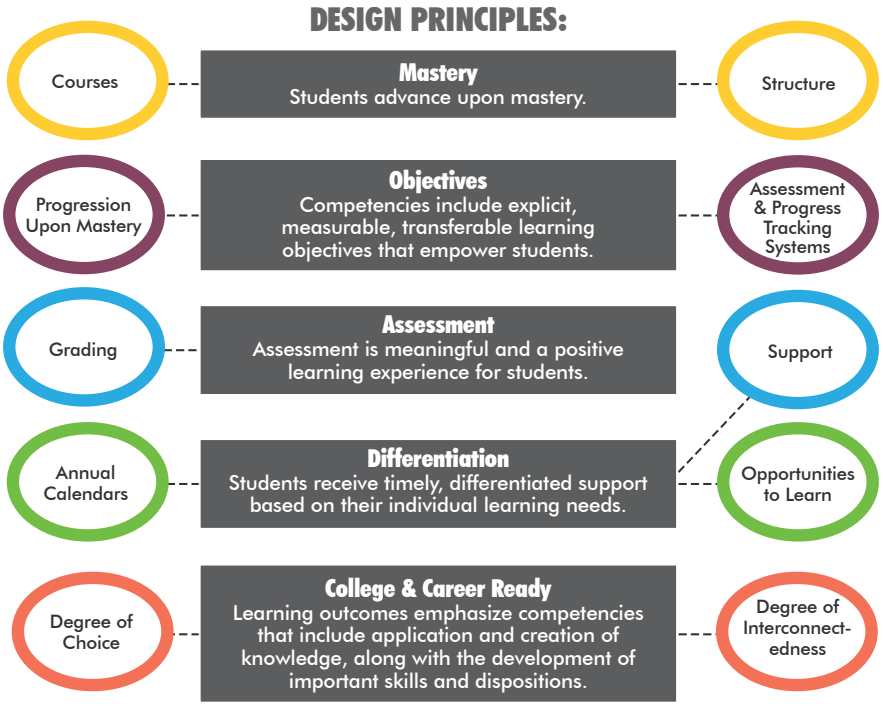
10. Provide Funding That Supports Options and Innovation: Equal doses of creativity and commitment to equity will be needed to align funding around competency education. Weighted funding will certainly be required based on the true costs of educating underserved populations within a personalized, 24/7, competency-based model. Districts and schools need adequate funding for their unique functions while providing flexible financing so students can take the courses they want from the providers of their choice. Funding needs to encourage schools to accelerate learning while eliminating disincentives for achievement and graduation. First and foremost, states and districts need to immediately eliminate barriers to personalization and adequate learning time and experiment with incentives that encourage (or at least no longer discourage) acceleration.

For more information on funding, see the Digital Learning Now! recommendations:

- Weighted funding that provides more funds for students who bring more risk factors to school and provisions more time and more options,
- Portable funding that follows the student to the best learning option, and
- Performance-based funding that creates incentives for completion and achievement.

10 Design Choices

There is no single right way to do competency education. Even with the constraint of operating in the traditional time-based policy context, there is a great deal of variation in the design choices that districts and schools are making as they shift to competency education. Furthermore, there is much room for realigning resources around learning that is so far untapped. Below are a few of the design choices that schools are making to organize students, educators, and resources to support student progression through the K-12 system. We take the liberty to propose other design choices that may develop as we become more accustomed to thinking beyond the traditional system.



1. Structure: The traditional system uses age-based grades to create cohorts of students that flow through the system. Schools are generally organized into K-6 (although sometimes K-8), -8, 9-12, and post-secondary. This division is primarily based on child and adolescent development issues. There is now greater fluidity between high school and college with AP, dual enrollment, and early college. Competency-based schools focus on optimizing learning and performance rather than age.

- Casco Bay High School uses grade-based cohorts to enhance a learning community formed among students working together over four years.
- Adams 50 has maintained elementary, middle, and high schools with 12 levels to indicate where students are on the learning progression.
- Diploma Plus uses three performance levels – the Foundation Phase, the Presentation Phase, and the Plus Phase – which provide greater opportunity as students build foundational skills and demonstrate maturity.
- San Francisco Flex is an online high school that provides onsite support. Each student can decide what courses to work on and moves at their own pace.
- As part of the statewide improvement capacity, the Education Achievement Authority of Michigan is implementing a student-centered model that organizes students by instructional level rather than age and grade level, and lets them progress via mastery rather than seat time.
- Cornerstone Charter School in Detroit replaced individual classrooms and instructors for core

content areas. Students work in "pods" of 75 students with individual cubicles that allow them to focus on personalized online content. They gather in open spaces for small groups, projects, and direct instruction as needed.

- At the Alliance Technology and Math Science High School in Los Angeles, 48 students rotate through three stations within core subject classes: teacher-led, online, and collaborative instruction.

2. Grading: The grading philosophy is one of the most important decisions, as it defines how students understand what is needed to be successful, but it's really the promotion policy that is most important. When students are allowed to progress with C's and D's, it typically indicates that they haven't mastered the content. Districts have learned that it is very important to invest in helping parents, communities, and colleges understand new grading systems and the decisions and interventions triggered by the grades.

- Spaulding High School in Rochester, New Hampshire uses Not Yet Competent, Competent, Beyond Competent, and Advanced.
- Kennebec Intra-District Schools in Maine uses a 0-4 grading scale; all students are expected to reach at least 3 on all learning targets before they progress.
- In Federal Way, Washington, students must pass the course or class with a grade of C or better in order to advance to the next level or grade. Extra credit activities that have no relation to the standards do not impact the grade.
- AdvancePath, a national dropout prevention network, requires students to complete units and courses at 80% or better to move on.

3. Support: The traditional instructional model provides support when students are already failing. Students can go for weeks at the beginning of a course without getting extra help. Homework and tests may come back with a grade but no helpful feedback, and often by the time it is returned the teacher has moved on to other material. Students may be required to go to summer school or be retained for an entire year without individualized plans that help them become proficient. The good news is that we have already seen schools begin to adopt competency-based approaches, particularly with early reading programs that leverage teams of teachers, classroom aides, and literacy coaches to provide differentiated instruction with frequent diagnostic assessments that measure student skills. This same approach can be enhanced using modern technology tools to even better personalize instruction and ensure students are receiving the right supports and interventions in real time.

In competency education, schools organize resources to keep students on their learning edge.[21] Knowing that all students will struggle at some point, they embed time for extra help.

- At Messalonskee Middle School in Maine, students have Learning Goal Time embedded in every school day to work on whatever topic they need help with.
- Boston Day and Evening Academy is designed around transitions. Transfer windows allow students two weeks to complete all work if they want to progress to the next course.
- At Bronx Arena High school for over-aged and under-credited young people, the staff supports learners by building relationships,

Competency-Based Learning and Florida Virtual School[22]

Many examples of benchmark competency-based practices can be found in Florida Virtual School (FLVS) courses. FLVS builds its courses around the concept of assessment against competencies and a consistent thread of competency education factors.

Self-Assessments: In the self-assessment, learners can manage their own mastery level and take appropriate action to relearn skills before attempting a formal assessment. Students are able to "own" their learning and work on what they actually need to do, compared to a traditional school, where a student will sit through a lesson with the rest of the class even if they don't individually need it.

Multi-Source Assessments: Students receive feedback from multiple sources, including pre-tests, formative assessments throughout the lessons, and summative assessments. FLVS teachers also complete discussion-based assessments in each unit of study. Teachers verbally assess for mastery before students can move on to the next module, which ensures a deeper understanding in subjects that build upon previous knowledge, such as foreign languages or math. The teacher is the gatekeeper, who only allows the students to move on when mastery is demonstrated through work products and discussions. Students also have some group projects that provide opportunities for them to work together and build knowledge collaboratively.

Individual Learning Plans: FLVS has worked hard to have effective Learning Management Systems. The systems permit students to identify their progress compared to course goals, personally established time-line goals, and skills identified for mastery. They can continually monitor their own success and gaps in progress.

Learning Resources Catalogued by Competency: Most courses have pre-tests at the beginning of each module, which consist of a variety of questions that are grouped by competency. When students demonstrate mastery of a group of pre-test questions, they are then exempted from the corresponding lesson and assessment. This allows them to spend more time on weaker areas. This prescriptive model is overseen by the teacher, who completes a discussion-based assessment with the student prior to exempting lessons to ensure a deep conceptual understanding.

social skills, family support, and life skills. Students demonstrate competency through a variety of ways including projects, papers, labs, demonstrations, and tests.
- At Da Vinci Schools, depending on their proficiency level, passion, and needs, each student's individualized learning plan encompasses targeted interventions and supports to ensure their success.
- At FLVS, teachers call students when they aren't progressing and provide individual tutoring when necessary.

4. Progressing Upon Mastery: Competency systems use a variety of gateways to manage progress and matriculation. Depending on the flexibility that has been built into the systems, competency education can offer progress within a course or into higher-level courses. Some schools use a myriad of small gateways, while others focus on major demonstrations of learning every two or three years. We have yet to open up the institutional structures that allow students to soar.

- Adaptive software tools allow students to progress in their learning.
- To advance at Cornerstone Charter School and Carpe Diem, students must be able to show mastery through a system of assessments including standardized tests, data harvested from online activities, and real-world challenges and self-assessments. At Cornerstone, virtual data dashboards provide anytime, anywhere access to student progress. Those dashboards are reviewed weekly with advisors (called "relationship managers") to help students reflect

on their work.
- At Schools for the Future in Detroit, students move at their own pace toward graduation through four performance levels: Core I, Core 2, Transitions, and Pathways.
- Schools in the National Center for Education and the Economy's Excellence for All network use credentialed exams as gateways so that students can take the exams when they are ready, and have multiple opportunities to pass them.

5. Annual Calendars: To create more time for students who need it, many competency systems move toward a year-round calendar. Time between sessions can be used for enrichment or extended learning time.

- Florida Virtual School serves 400,000 part-time students with year-round rolling enrollment courses.
- Boston Day and Evening Academy creates weeklong intensive sessions to apply learning and for teachers to better assess how students are applying skills.
- Next Generation Schools stagger teacher vacations to have more time for student learning.
- Many schools use a balanced calendar that has four sessions of 45 days with 15- to 30-day breaks in between for students to spend on extra practice or enrichment work.

6. Courses: In general, schools are continuing to use the course structure to indicate a unit of learning. The organization of the courses and the degree of modularity may vary based on the school calendar and the degree of importance the school design gives to curricular themes.

- Building upon the Common Core math standards, which are designed to facilitate modular approaches, schools use a block approach in which students are working individually or in small groups in various courses.
- Virtual Learning Academy has shifted from credit recovery to competency recovery.
- Boston Day and Evening Academy uses flexible trimesters.
- The Schools for the Future Curriculum is designed with 30-day modules, shorter mini-courses, and a 30-day progress review cycle.

7. Degree of Choice: Competency education enables more student voice and choice, because the competencies and rubrics are agreed upon ahead of time.

- Schools that have organized themselves around strong themes (such as the International Studies School Network) or schools that are providing the shortest route to a high school diploma (such as Boston Day and Evening Academy) may choose to offer very a well-developed curriculum but fewer course choices.
- Online schools provide choices well beyond what traditional schools can provide.
- Schools can offer students choice within courses as well. In the districts participating in the Maine Cohort for Customized Learning, such as MSAD 15 in Gray-New Gloucester, blended learning offers students the ability to select curricular tasks and options for how they want to demonstrate their learning.

8. Degree of Interconnectedness: Some schools continue to use specific domains to organize their courses, while others turn to interdisciplinary courses and projects.

- Spaulding High School is organized around the traditional academic disciplines.
- Denver Center for International Studies, a member of the ISSN, uses global education as an organizing theme to shape its curriculum.
- ACE Leadership uses the context of architecture, construction, and engineering to design projects that are rooted in real-world industry challenges and designed to help students build up their competencies.

9. Opportunities to Learn: There has been an explosion of opportunities for students to learn. The competencies and learning targets that make up learning progressions allow schools to offer a variety of ways to deliver instruction, perform curricular tasks, and demonstrate student learning.

- Open education learning resources include math videos from Khan Academy, free textbooks from CK12, and Massively Open Online Courses (MOOC) from leading universities. It is possible for anyone with a broadband connection to learn almost anything, anywhere.
- New Hampshire's state policy empowers students to draw on real-world experiences to build skills and demonstrate learning. Teachers validate learning using the same rubrics as they would for classroom-based instruction.
- In dynamic job categories like web design, demonstrated skill can earn a badge from the P2PU School of Webcraft. Portfolios and recommendation systems are also emerging that market similar strategies.
- Adaptive instructional software is becoming more sophisticated, and provides rapid feedback and rich analytics. Blended models, such as Matchbook Learning and Rocketship schools, are using adaptive software to provide underserved students opportunities to work at their own pace.
- There are expanding opportunities to learn online or on the job and to earn college credit by taking a test. Western Governor's University has been offering competency-based credit for 15 years. College Board offers the College Level Examination Program (CLEP), and there are several free CLEP prep options.

With all of the informal and open learning opportunities available, many students will likely learn outside the formal structure of school. Competency-based systems will make it easy to show what they know, earn credit, and move to the next subject. Summative assessments will vary, including performance-based assessment and end-of-course exams. Badge systems are likely to help validate and "credit" students for smaller chunks of learning (i.e., unit size rather than full courses).

10. Assessments and Progress Tracking Systems: Time-based approaches in the current system are oriented toward traditional grading and managing a cohort environment. Competency-based schools need to make strategic

How do Competency-Based Learning and Digital Learning Connect?

There are powerful intersections between competency education and digital learning. The Digital Learning Now! framework for guiding policymakers identifies 10 elements to enable digital learning, three of which enable competency education.

Element 3: Personalized Learning (All students can use digital learning to customize their education).

- State allows students to take online classes full time, part time, or by individual course.
- State allows students to enroll with multiple providers and blend online courses with onsite learning.
- State allows rolling enrollment year-round.
- State does not limit the number of credits earned online.
- State does not limit provider options for delivering instruction.

Element 4: Advancement (All students progress based on demonstrated competency).

- State requires matriculation based on demonstrated competency.
- State does not have a seat-time requirement for matriculation.
- State provides assessments when students are ready to complete the course or unit.

Element 8: Assessment and Accountability (Student learning is the metric for evaluating the quality of content and instruction).

- State administers assessments digitally.
- State ensures a digital formative assessment system.
- State evaluates the quality of content and courses predominately based on student learning data.
- State evaluates the effectiveness of teachers based in part on student learning data.
- State holds schools and providers accountable for achievement and growth.

decisions about assessment strategies and systems, student information systems that track individual and group progress in achieving proficiency, and reporting/visualization systems. Choices about access devices (i.e., laptops or tablets) will impact systems options.

- Casco Bay High School in Portland, ME upgraded their assessment system for alignment with graduation outcomes to achieve full transparency between students, families, and teachers and to enhance accountability.
- Vergennes Unified High School is working with the Center for Collaborative Education to build teachers' capacity to design and use performance-based assessments.
- Adams 50 and Lindsay Unified School districts are using the Educate system to monitor student progress, provide feedback to teachers, and enable principals to build staff capacity.
- Michigan's Education Achievement Authority is working in partnership with Agilix to develop Buzz, which monitors student progress and engagement.

These are just a few of the design choices that competency-based innovators will need to make. Each one needs to be made based on how it will ensure that traditionally underserved students will thrive in a competency-based system. As digital tools and information systems develop, it is likely that an entirely new set of techniques and approaches will be required. We are on the edge of an extraordinary time in education.

State Policy that Supports Competency-Based Learning

Almost all of our state policies are time based. We still depend on the centuries-old practice of grouping students by birthday. We start with how many days students need to be in school. We define the instructional hours every student is to receive. We determine credits by seat time. Our challenge is to loosen our minds and deploy our creativity towards establishing policies that focus on student learning.

Digital Learning Now! has started this process with its list of policy recommendations to create more options and enable competency-based learning. Building on these, we offer state policy leaders a checklist for bringing their states into the 21st century.

Upgrade Graduation and Higher Education Policies

- Every state should have clear proficiency-based diplomas that ensure students are college and career ready.
- Students should be able to access courses in higher education while still in high school.
- Admissions to higher education without remediation need to be transparent, and mechanisms should be in place to allow students to determine where they are on the progression towards being competitive towards admissions.
- Extended graduation rates should be in place and used within the accountability system to ensure that districts and schools continue to serve students who are not yet proficient in college- and career-ready standards.
- Higher education establishes clear, transparent levels of competencies required for admissions so that students can determine how close they are to meetings those competencies.
- Higher education and scholarship programs' upgrade policies should no longer depend on the time-based GPA.

Grading and Assessment

- States should update their grading policies to ensure students have multiple opportunities to take summative assessments; grading can be competency based so that students can update grades based on proficiencies gained.
- State summative assessments should be taken when students are proficient; not before.
- State summative assessments should be available in a timely manner, so that when students are proficient they can take summative assessments.
- States should use a digital formative assessment system.

Expanding Personalization and Accelerating Pacing

- States should establish policy that students entering a new school are assessed according to where they are on their learning progression and receive differentiated supports.
- States should allow students to take online classes full time or part time by the individual course.
- States should require online courses to be based on demonstrated competency.
- States should allow rolling enrollment, year-round.

Increased Flexibility in Operations

- Schools should flexibly manage operations and scheduling as they see fit to enhance their ability to respond to students.
- Teacher certification should be upgraded so that schools have the capacity to provide services to students with substantially lower- and higher-level skills than those of the specific grade levels of the school.

Quality Control, Continuous Improvement, and Accountability

- States should hold school and individual providers accountable for achievement and growth.
- States should evaluate the quality of content and courses predominantly based on student learning data.
- States should ensure that local state data systems and related applications are updated and robust enough to inform longitudinal management decisions, accountability, and instruction.

CONCLUSION

Our optimism about competency education is derived from early examples of personalized learning, systems that extend time and create options, and from schools that require students to show what they know. However, the benefits for fast learners, struggling students, and students that learn differently require a transformation of how American education is organized and managed. Perhaps more challenging than building the new toolset is changing the mindsets – of parents, teachers, and admissions counselors – about grades, grouping, rankings, and progress.

On the transition, Michael Fullan is convinced that we can and must build "irresistibly engaging" learning experiences for both students and teachers. He proposes "skinny solutions" that are hard to build and easy to implement. Fullan puts the onus on education leaders to make change easier by adding "enjoyable, worthwhile experiences." Of new schemes, he suggests a high bar: "It must be irresistibly engaging; elegantly efficient (challenging but easy to use); technologically ubiquitous; and steeped in real-life problem solving."[23]

Some of the innovation will occur from new school development, and some from aggressive school improvement efforts. Much of it will come from outside the system. Sal Khan has made a big contribution with his 3,500 videos, but his most important contribution will be in teaching us all what competency-based learning looks like. His knowledge maps, playlists, and badges are laying the groundwork for how the whole system will work by the end of the decade. Credit granting systems based on MOOC's and informal learning experiences will also influence K-12.

Given the magnitude of the challenge and the high bar that Fullan sets, the authors see three key priorities regarding the transition to competency education.

- **Implementation Challenge:** The biggest implementation challenge is the risk that time-based, tracking practices slip in and undermine the model and that we won't be able to develop meaningful ways to systematize new approaches to managing matriculation based on competence (i.e., funding, reporting, accountability, metrics) quickly enough.

- **Opportunities:** The most exciting opportunity is what lies in store for learning. The explosion of student data will help us better understand unique learners, variations in learning, and how to construct powerful learning progressions and cost effectiveness like never before. Employing digital tools in a competency-based environment will set the stage for anything to be possible for students.

- **Language and Leadership:** In shifting the focus from chronology to competency, leaders need a new language to capture the system's new capabilities and avoid confounding families and communities. This will require a common language about college and career preparation.

Next Steps: To accelerate progress, the following should be aligned with competency education:

- College- and career- ready expectations: Common Core and more that include knowledge, skills, and dispositions,
- Assessments: waivers and accommodations that support competency-based systems,
- Learning platforms: competency-tracking digital tools that make it easy to manage a competency-based environment, and
- Incentives for innovation: incentives for new school development and conversion to systems organized around student achievement.

"There will be a great appetite for the new way," said Fullan. "Passion, purpose, and the new pedagogy are natural winners because they tap into and activate what is human – doing something intrinsically meaningful and of value to oneself, one's peers, and the world at large."[24]

The opportunity is to build a new system focused on student learning – schools where students learn in the best way possible for them, where there are different ways to learn, where the day and year are extended, and where students show what they know on a regular basis. Next month, this series will take on the implementation challenge in more detail.

APPENDIX: COMPETENCY EDUCATION RESOURCES

CompetencyWorks and the complementary Competency-Based Pathways Wiki are loaded with resources. Find out how classroom practices change and information on optional grading policies, advancements in state policy, and more. You can also find issue briefs on a range of topics.

It's Not A Matter of Time — Highlights from the 2011 Competency-Based Learning Summit
Learn about important topics from the 2011 Competency-Based Learning Summit, such as what competency education is, how to get started, the challenges in implementing competency education, and how to personalize the process for your students.

Art and Science of Designing Competencies
Learn how to design and create competencies in a classroom and how to create the environment teachers need in order to implement these competencies successfully.

The Learning Edge: Supporting Student Success in a Competency-Based Learning Environment
Understanding how to structure supports is important, because learning in a competency-based environment means that students and adults are often on the edge of their comfort zone and competence: the learning edge. This paper describes how innovators are designing school culture, embedding supports, and organizing resources to ensure students are progressing and on pace.

Making Mastery Work: A Close-Up View of Competency Education by Nora Priest, Antonia Rudenstine, and Ephraim Weisstein, Nellie Mae Education Foundation 2012.

State Strategies for Awarding Credit to Support Student Learning published by the National Governor's Association.

Case Studies of Three Districts in Maine
This study discusses how school districts, teachers, and communities have explored the potential for customized and competency-based education. The Maine Department of Education has made a series of videos and case studies available to help other districts.

Developing Rigorous Competencies for Off-track Youth: A Case Study of Boston Day and Evening Academy by Jobs for the Future

Off the Clock: Moving Education from Time to Competency by Fred Bramante and Rose Colby
This book provides an in-depth look at New Hampshire's journey towards a competency-based system. The authors provide personal reflections as well as detailed descriptions of the policy changes, stakeholder engagement, and implementation decisions.

Iowa's Online Forum on Competency Based Education http://iacomped.com/.

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ENDNOTES

1. Like some districts and states, we use the term competency education, while others refer to proficiency- or performance-based education. The U.S. Department of Education switched to mastery-based education in the 2012 Race to the Top competition. We don't expect a single term to be adopted. What's important is that they all refer to a system in which students progress after meeting expectations.
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19. We use the EPIC definition of college and career readiness available at http://www.epiconline.org/readiness/definition.dot.
20. Parts of this section originally appeared in Getting Smart blog posts by Tom Vander Ark: http://gettingsmart.com/cms/blog/2011/06/diane-travenner-on-the-summit-prep-teacher-development-system/ and http://gettingsmart.com/cms/blog/2011/06/coherence-fsustained-leadership/.
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23. Based on a review of Michael Fullan's book Stratosphere that originally appeared on a Getting Smart blog post by Tom Vander Ark. http://gettingsmart.com/cms/blog/2012/09/the-skys-limit-16-must-read-quotes-michael-fullans-stratosphere/
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